NOVEMBER 1981 NUMBER 447 -- Part I

Solar-Geophysical Data prompt reports

Data for October 1981, September 1981 & Late Data
Explanation of Data Reports Issued as Number 438 (Supplement) February 1981

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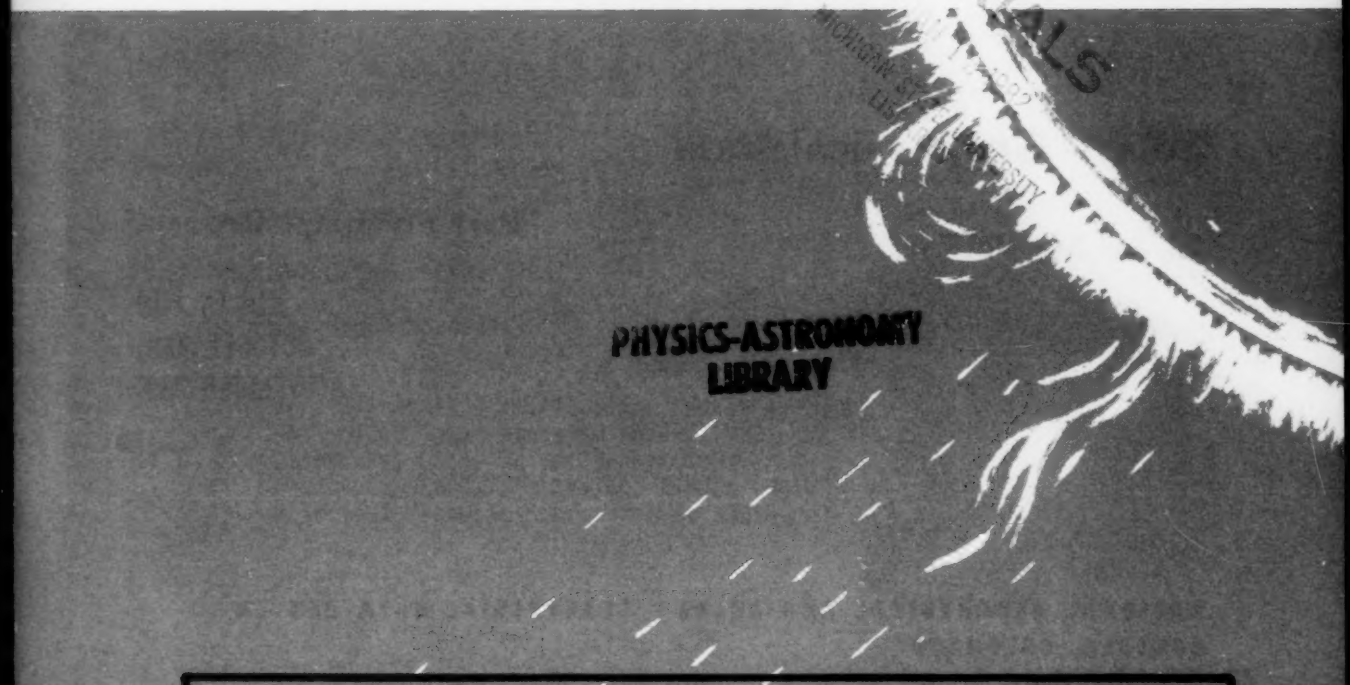

Late Data **Pages 159-180**

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Solar - Geophysical Data

NO. 447 NOVEMBER 1981

Part I (Prompt Reports)

DATA FOR
OCTOBER 1981
SEPTEMBER 1981

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SOLAR-GEOPHYSICAL DATA

No. 447

Issued in two parts

Helen E. Coffey, Editor

Joe H. Allen, Chief
Solar-Terrestrial Physics Division

CONTENTS

Part I (Prompt Reports)

PAGE

Index for 1980-1981 2

Data for October 1981 3-47

Data for September 1981 49-158

Late Data 159-180
Interplanetary Scintillations September 1981
Regions of Solar Activity August 1981
Cosmic Ray Daily Values August 1981
Hourly Equatorial Dst Values August 1981
Principal Magnetic Storms August 1981

Part II (Comprehensive Reports)

Index for 1980-1981 2

Data for May 1981 3-42

Solar Flare Data February 1980 43-73

Miscellaneous Data 75-77
Active Regions 4 April 1981 - 1 May 1981
Synoptic Solar Map 4 April 1981 - 1 May 1981

DETAILED COVERAGE FOR 1980-81 PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

		1980 Oct	Nov	Dec	1981 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
A.	SOLAR AND INTERPLANETARY PHENOMENA													
A.1	Sunspot Drawings	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	
A.2a	Zurich Provisional Relative Sunspot Numbers Rz	435A 11	436A 11	437A 11	---	---	---	---	---	---	---	---	---	---
A.2aa	International Provisional Relative Sunspot Numbers R_I				438A 11	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11	446A 11	447A 11
A.2b	Zurich Final Sunspot Numbers Rz	440A 10	440A 10	440A 10	---	---	---	---	---	---	---	---	---	---
A.2c	American Relative Sunspot Numbers Ra	435A 11	436A 11	437A 11	438A 11	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11	446A 11	447A 11
A.3a	Mt. Wilson Magnetograms	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	436A112	437A120	438A106	439A108	440A108	441A120	442A112	443A106	444A112	445A116	446A163	447A114	
A.3c	Kitt Peak Magnetograms	436A 50	437A 60	[illegible]	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	
A.3d	Mean Solar Magnetic Field (Stanford)	435A 42	436A 42	437A 44	438A 36	439A 38	[illegible]	441A 50	442A 44	443A 38	[illegible]	445A 47	446A 34	447A 46
A.3e	Stanford Magnetograms	436A 50	437A 60	[illegible]	439A 46	439A 52	441A 58	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	
A.4	H-alpha Filtergrams	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	
A.5	Calcium Plage Drawings - Mt. Wilson	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	
A.5a	Calcium Plage (Mt. Wilson) and Sunspot Regions	436A112	437A120	438A106	439A108	440A108	441A120	442A112	443A106	444A112	445A116	447A163	447A114	
A.5b	Mt. Wilson Daily Calcium Plage Indices	436A127	437A134	438A121	439A123	440A121	441A135	442A127	443A119	444A122	445A129	447A175	447A128	
A.6	H-alpha Synoptic Charts	436A 46	437A 52	438A 40	439A 42	[illegible]	441A 54	442A 48	443A 42	444A 50	445A 52	446A 38	447A 50	
A.6b	Synoptic Chart and Active Regions (Paris)	[illegible]	444B 52	[illegible]	446B 56	444B 58	446B 79	447B 76						
A.6c	Stanford Solar Magnetic Field Synoptic Charts	436A 47	437A 54	438A 41	439A 43	[illegible]	441A 55	442A 49	443A 43	444A 51	445A 53	446A 39	447A 51	
A.6d	Kitt Peak Solar Magnetic Field Synoptic Charts	436A 48	437A 56	438A 42	439A 44	[illegible]	441A 56	442A 50						
A.6e	Mass Ejections from the Sun	[illegible]	441B 51	443B 62	443B 26	[illegible]	445B 57	446B 74	447B 40					
A.7f	Helium D3 Chromosphere (Big Bear)	436A177	436A 39	437A 44	438A 33	439A 39	441A170	---	---	443A 35	444A 43	---	446A 30	---
A.7g	Helium Synoptic Maps (KPNO)	436A 49	437A 58	438A 43	439A 45	440A 51	441A 57							
A.7h	Coronal Line Emission (Sac Peak)	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	[illegible]	447A 54	
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	435A 11	436A 11	437A 11	438A 11	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11	446A 11	447A 11
A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	435A 11	436A 11	437A 11	438A 11	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11	446A 11	447A 11
A.9g	Daily Values of Adjusted Solar Flux (AFGL)	435A 11	436A 11	437A 11	438A 11	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11	---	447A 11
A.10a	169 MHz - Interferometric Observations (Nancay)	436A176	438A160	438A161	439A154	439A 24	440A 29	442A160	442A 27	443A 23	444A 27	445A 27	446A 20	447A 28
A.10c	21 cm East-West Solar Scans (Fleurs)	435A 30	436A 29	437A 34	438A 24	439A 27	440A 32	441A 33	442A 30	443A 26	444A 30	445A 30	446A 23	447A 32
A.10d	43 cm East-West Solar Scans (Fleurs)	435A 31	436A 30	437A 35	438A 25	439A 28	440A 33	441A 34	442A 31	443A 27	444A 31	445A 31	446A 24	447A 33
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	435A 29	436A 28	437A 33	438A 23	439A 26	440A 31	441A 32	442A 29	443A 25	444A 29	445A 29	446A 22	447A 31
A.10f	3 cm East-West Solar Scans (Toyokawa)	435A 28	436A 27	437A 32	438A 22	439A 25	440A 30	441A 31	442A 28	443A 24	444A 28	445A 30	---	447A 29
A.10g	8 cm East-West Solar Scans (Toyokawa)												446A 21	447A 30
A.11g	Solar X-ray (SMS/GOES) (graphs)	440B 32	441B 46	[illegible]	443B 20	444B 43	445B 51	446B 69	447B 34					
A.12e	Energetic Solar Particles (IMP H & J)													
A.13d	Solar Wind from IPS Measurements	435A 37	436A 37	437A 41	442A161	442A161	442A161	442A161	442A 39	443A 32	445A170	445A 42	447A160	447A 41
A.13e	Solar Plasma (IMP H & J)	443B 66	443B 67											
A.13f	Solar Wind (Pioneer 12 (Venus))	435A 43	436A 43	437A 45	438A 37	442A170	442A170	442A171	442A 45	443A 39	444A 47	445A 45	446A 31	447A 43
A.17	Interplanetary Magnetic Field (Pioneer 12)	436A132	438A162	438A125	439A127	440A153	---	---	---	444A126	445A135	446A107	447A129	
A.17c	Inferred IP Magnetic Field	436A 40	436A 40	437A 46	438A 34	439A 36	440A 44	441A 48	442A 42	443A 36	[illegible]	[illegible]	446A 32	447A 44
B.	IONOSPHERIC (AND RADIO WAVE PROPAGATION) PHENOMENA													
B.52	Graphs of Transmission Frequency Range	436A172	437A170	438A156	439A150	440A154	441A167	442A156	443A150	444A148	445A166	446A140	447A156	
B.53	Quality Figures Based on Frequency Ranges	436A174	437A169	438A155	439A152	440A156	443A166	442A158	443A149	444A150	445A165	446A139	447A158	
C.	FLARE-ASSOCIATED EVENTS													
C.1a	Optical Observations Flares	435A 16	436A 16	437A 16	438A 16	439A 14	440A 18	441A 18	442A 16	443A 15	444A 16	445A 16	446A 16	447A 16
C.1ba	Optical Observations Flares (Standardized Data)	439B 73	442B 44	443B 28	445B 60	[illegible]								
C.1d	Flare Patrol Observations	435A 27	436A 26	437A 31	438A 21	439A 23	440A 28	441A 30	442A 26	443A 22	444A 26	445A 26	446A 19	
C.1d	Flare Patrol Observations	439B116	442B 82	443B 59	[illegible]									
C.1e	Flare Indices (by day)	439B115	442B 81	443B 58	445B 89	447B 73								
C.1f	Flare Indices (by Region)	[illegible]	443B 68	445B 92										
C.3	Solar Radio Waves - Outstanding Occurrences	440B 5	441B 5	442B 5	443B 5	444B 5	445B 5	446B 5	447B 4					
	Solar Radio Waves - Fixed Frequencies - Selected	435A 32	436A 31	437A 36	438A 26	439A 29	[illegible]	441A 35	442A 32	443A 28	444A 32	445A 32	446A 25	447A 34
C.4a	Solar Radio Spectral Obs. (Fort Davis)	436A133	437A139	439A155	439A128	440A126	441A136	442A134	443A123	444A127	445A136	446A108	447A130	
C.4d	Solar Radio Spectral Obs. (Culgoora)	436A133	437A139	438A126	439A128	440A126	441A136	443A154	443A123	444A127	445A136	446A108	447A130	
C.4e	Solar Radio Spectral Obs. (Weissenau)	437A139	438A126	439A128	440A126	441A136	442A134	443A123	445A174	445A136	445A136	446A108	447A130	
C.4f	Solar Radio Spectral Obs. (Sagamore Hill)	436A133	437A139	438A126	439A128	440A126	441A136	442A134	443A123	444A127	445A136	446A108	447A130	
C.4h	Solar Radio Spectral Obs. (Owingeloo)	436A133	437A139	438A126	439A128	440A126	441A136	442A134	443A123	444A127	445A136			
C.4i	Solar Radio Spectral Obs. (Bleien)	436A133	437A139	438A126	439A128	440A126	441A136	442A134	443A123					
C.4j	Solar Radio Spectral Obs. (Manila)													
C.4k	Solar Radio Spectral Obs. (Learmonth)	436A133	437A139	438A126	439A128	440A126	441A136	442A134	443A123	444A127	445A136	446A108	447A130	
C.4l	Solar Radio Spectral Obs. (Palehua)	436A133	437A139	438A126	439A128	440A126	441A136	442A134	443A123	444A117	445A136	446A108	447A130	
C.5e	Solar X-ray (SMS/GOES) (graphs)	440B 32	441B 46	442B 36	443B 20	444B 43	445B 51	446B 69	447B 34					
C.6	Sudden Ionospheric Disturbances	436A128	437A135	438A122	439A124	440A122	442A172	442A128	443A120	444A123	445A130	446A102		
D.	GEOMAGNETIC AND MAGNETOSPHERIC PHENOMENA													
D.1a	Geomagnetic Indices Kp, Kn, Ks, Km, Ap, aa, Cp	436A166	437A163	438A149	439A145	440A149	441A162	443A164	443A144	444A144	445A160	446A135	447A152	
D.1ba	27-day Chart of Kp Indices	436A168	437A165	438A151	439A147	440A151	441A164	442A153	443A146	444A146	445A162	446A137	447A154	
D.1c	27-day Chart of C9	441A165	4411165	441A165										
D.1ca	aa graph 1868 - present													
D.1d	Principal Magnetic Storms	436A171	437A168	438A154	439A148	440A152	441A166	442A155	443A147	444A147	445A163	447A180		
D.1e	Reduced Magnetograms													
D.1f	Sudden Commencement and Solar Flare Effects	437A176	437A169	439A163	439A149	441A170	442A180	443A165	443A148	445A180	445A164	446A138	447A155	
D.1g	Equatorial Indices Dst	436A168	437A167	438A153	440A160	441A172	442A182	444A155	445A182	445A183	446A144	447A179		
D.1h	Geomagnetic Substorm Log (Boulder)	435A 44	436A 44	437A 49	438A 38	439A 40	440A 43	441A 51	442A 46	443A 40	[illegible]	445A 4	446A 35	447A 47
F.	COSMIC RAYS													
F.1a	Cosmic Ray Neutron Counts (Deep River)	436A165	438A163	439A162	440A159	440A145	442A177	442A151	444A152	447A176	447A176	447A177	447A151	
F.1b	Cosmic Ray Neutron Counts (Climax)	438A163	438A163	---	440A159	442A177	442A177	442A151	443A141	445A178	447A176	447A177	447A151	
F.1e	Cosmic Ray Neutron Counts (Alert)	436A165	438A163	439A162	440A159	440A145	442A177	442A151	444A152	447A176	447A176	447A177	447A151	
F.1h	Cosmic Ray Neutron Counts (Thule)	436A165	437A162	438A148	439A144	440A145	441A159	442A151	443A141	444A141	445A157	446A134	447A151	
F.1i	Cosmic Ray Neutron Counts (Kiel)	436A165	437A162	438A148	439A144	440A145	441A159	442A151	443A141	444A141	445A157	447A177	447A151	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	436A165	437A162	438A148	439A144	440A145	441A159	442A151	443A141	444A141	445A157	447A177	447A151	
F.1l	Cosmic Ray Neutron Counts (Huancayo)	438A163	439A162	439A162	442A177	442A177	442A177	443A163	443A141	445A178	447A176	447A177	447A151	
H.	MISCELLANEOUS													
H.60	IUWDS Alert Decisions	435A 5	436A 5	437A 5	438A 5	439A 4	440A 5	441A 5	442A 5	443A 5	444A 5	445A 5	446A 4	447A 4

Notes:

"436A 50" listed under 1980 Oct means that the sunspot drawings for Oct 1980 were contained in *Solar-Geophysical Data* Number 436 - Part I, beginning on page 50.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

SGD 447 Part I (Prompt)

OCTOBER 1981 DATA

Contents

	Page
Alert Periods	
IUWDS Alert Periods (Advance and Worldwide)	4-9
Daily Solar Indices	
Relative Sunspot Numbers, R_Z or Ri, and Daily Solar Flux at 2800 MHz (12 Month Tables)	10
Daily Solar Indices (Sunspot Numbers and Solar Fluxes)	11
Observed and Predicted Solar Activity Indices	12
Smoothed Observed and Predicted Sunspot Numbers	13
Graph of Observed and Predicted Sunspot Numbers	14
Graph of Superposition of Cycles 18, 19 and 20	15
Solar Flares	
H-alpha Solar Flares	16-27
Intervals of No Flare Patrol Observation (UNIVAC computer delays)	
Solar Radio Emission	
169 MHz Solar Interferometric Chart - Nancay	28
3 cm East-West Solar Scans - Toyokawa	29
8 cm East-West Solar Scans - Toyokawa	30
10.7 cm East-West Solar Scans - ARO, Ottawa	31
21 cm East-West Solar Scans - Fleurs	32
43 cm East-West Solar Scans - Fleurs	33
Selected Fixed Frequency Events	34-39
Selected Solar Noise Bursts	40
Solar Wind Measurements	
Interplanetary Scintillations	41-42
Coronal Holes	
Helium D3 Chromosphere (No observations)	
Spacecraft Observations	
Pioneer XII (Pioneer Venus) Solar Wind	43
Inferred Interplanetary Magnetic Field Polarities	44
Mean Solar Magnetic Field	
Stanford Mean Solar Magnetic Field (Chart)	45
Stanford Mean Solar Magnetic Field (Table)	46
Geomagnetic	
Boulder Geomagnetic Substorm Log	47

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

OCTOBER 1981

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

07 OCTOBER 1981 SYDNEY 07/2310Z TENFLARE 705 FLUX UNITS 07/2242Z
08 OCTOBER 1981 BOULDER 08/0000Z SOFLARE X3/1B S18E90 07/2308Z DURATION 40 MINUTES
08 OCTOBER 1981 BOULDER 08/0000Z TENFLARE 1100 FLUX UNITS 07/2305Z DURATION 30 MINUTES
08 OCTOBER 1981 TOYOKAWA 08/0055Z TENFLARE 2700 FLUX UNITS 07/2251Z DURATION 100 MINUTES
09 OCTOBER 1981 BOULDER 09/1253Z PROTON EVENT 08/1235Z 10 PROTONS/C12/SEC/STER/ AT GREATER THAN 10 MEV. MAXIMUM 09/1125Z 29 PROTONS
10 OCTOBER 1981 BOULDER 10/1545Z SOFLARE M2/2B S20E45 10/1415Z DURATION 30 MINUTES
11 OCTOBER 1981 BOULDER 11/0345Z SOFLARE M2/2B S15W29 11/0333Z DURATION 20 MINUTES
11 OCTOBER 1981 BOULDER 11/1340Z STRONG MAGSTROM IN PROGRESS K=7,5,5 06-15Z
11 OCTOBER 1981 BOULDER 11/1340Z PROTON EVENT WHICH BEGAN AT 08/1235Z REACHED 83 PROTONS AT 11/0610Z
12 OCTOBER 1981 TOYOKAWA 12/0530Z TENFLARE 200 FLUX UNITS 12/0421Z DURATION 14 MINUTES
12 OCTOBER 1981 BOULDER 12/1335Z SOFLARE X3/3B S22E35 12/0622Z DURATION 42 MINUTES
12 OCTOBER 1981 BOULDER 12/1335Z TENFLARE 11300 FLUX UNITS 12/0618Z DURATION 111 MINUTES
12 OCTOBER 1981 TOYOKAWA 12/0750Z TENFLARE 17000 FLUX UNITS 12/0620Z DURATION 85 MINUTES
12 OCTOBER 1981 SYDNEY 12/2325Z SOFLARE IMPORTANCE 2 IN PROGRESS AT SUNRISE TYPE IV RADIO BURST IMPORTANCE 3
13 OCTOBER 1981 SYDNEY 13/2320Z MAGSTORM COMMENCED 13/2241Z
14 OCTOBER 1981 KAKIOKA 14/0040Z MAGSTORM 13/2241Z
14 OCTOBER 1981 TOYOKAWA 13/2355Z TENFLARE 260 FLUX UNITS DURATION 5 MINUTES
14 OCTOBER 1981 TOYOKAWA 14/0515Z TENFLARE 100 FLUX UNITS 14/0417Z DURATION 10 MINUTES
14 OCTOBER 1981 BOULDER 14/1745Z SOFLARE X3/SB S06E83 14/1701Z DURATION 58 MINUTES
14 OCTOBER 1981 BOULDER 14/1745Z TENFLARE 530 FLUX UNITS 14/1705Z DURATION 10 MINUTES
15 OCTOBER 1981 SYDNEY 15/0455Z TENFLARE 825 FLUX UNITS 15/0444Z DURATION 4 MINUTES
15 OCTOBER 1981 SYDNEY 15/0700Z TENFLARE 355 FLUX UNITS 15/0552Z DURATION 6 MINUTES
15 OCTOBER 1981 BOULDER 15/0730Z SOFLARE M3/2B S24W19 15/0550Z DURATION 14 MINUTES
15 OCTOBER 1981 BOULDER 15/0730Z TENFLARE 1000 FLUX UNITS 15/0443Z DURATION 12 MINUTES
15 OCTOBER 1981 BOULDER 15/0730Z TENFLARE 490 FLUX UNITS 15/0639Z DURATION 7 MINUTES
15 OCTOBER 1981 BOULDER 15/2035Z TENFLARE 691 FLUX UNITS 15/2018Z DURATION 3 MINUTES
16 OCTOBER 1981 TOYOKAWA 16/0415Z TENFLARE 100 FLUX UNITS 16/0350Z DURATION 2 MINUTES
16 OCTOBER 1981 BOULDER 16/1635Z SOFLARE M1/2B S19W36 16/1244Z DURATION 39 MINUTES
16 OCTOBER 1981 BOULDER 16/1635Z TENFLARE 400 FLUX UNITS 16/1224Z DURATION 13 MINUTES
18 OCTOBER 1981 BOULDER 18/1400Z TENFLARE 1300 FLUX UNITS 18/1122Z DURATION 10 MINUTES
19 OCTOBER 1981 BOULDER 19/0338Z SOFLARE C8/2B S08E27 19/0319Z DURATION 19 MINUTES
20 OCTOBER 1981 TOYOKAWA 20/0352Z TENFLARE 100 FLUX UNITS 20/0312Z IN PROGRESS
20 OCTOBER 1981 BOULDER 20/1435Z A INDEX GREATER THAN 20 EXPECTED FOR 20 OCTOBER K=5,6 FOR 20/09-15Z
22 OCTOBER 1981 SYDNEY 22/0540Z SSC 22/0525Z
28 OCTOBER 1981 MITAKA 28/0430Z SOFLARE IMP 2 S05W55 28/0400Z IN PROGRESS

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

October 1981

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
274	01	30	307	203	013	S09W79	0	0	0		01	S09W79	E	SOLQUIET
						S09W49	0	0	0			S09W49	Q	MAGQUIET
						S07W41	0	0	0			S07W41	Q	
						N08W40	1	0	0			N08W40	E	
						S14W35	0	0	0			S14W35	Q	
						S15W20	2	0	0			S15W20	Q	
						N08W08	0	0	0			N08W08	Q	
						S07W07	1	0	0			S07W07	Q	
						N06W02	0	0	0			N06W02	Q	
						S10W05	0	0	0			S10E05	Q	
						N17E08	0	0	0			N17E08	Q	
						N10E11	0	0	0			N10E11	Q	
						S18E26	0	0	0			S18E26	Q	
						N15E18	1	0	0			N15E18	Q	
						N13E39	2	0	0			N13E39	Q	
						S18E45	2	0	0			S18E45	Q	
						S06E80	0	0	0			S06E80	Q	
						N08E82	2	0	0			N08E82	Q	
275	02	01	287	214	008	S10W62	0	0	0		02	S10W62	Q	SOLQUIET
						N09W54	0	0	0			N09W54	E	MAGQUIET
						S07W54	0	0	0			S07W54	Q	
						S14W48	0	0	0			S14W48	Q	
						S15W31	1	0	0			S15W31	Q	
						N08W21	0	0	0			N08W21	Q	
						S06W20	1	0	0			S06W20	E	
						N06W18	0	0	0			N06W18	Q	
						S08W15	0	0	0			S08W15	Q	
						N17W07	1	0	0			N17W07	Q	
						N10W03	0	0	0			N10W03	Q	
						S10W01	0	0	0			S10W01	Q	
						N15E05	2	0	0			N15E05	E	
						S17E12	0	0	0			S17E12	Q	
						N13E25	0	0	0			N13E25	Q	
						S17E32	1	0	0			S17E32	E	
						S06E67	0	0	0			S06E67	Q	
						N09E72	4	1	0			N09E72	E	
276	03	02	310	208	015	S09W76	0	0	0		03	S09W76	Q	SOLQUIET
						N08W68	0	0	0			N08W68	E	MAGALERT 03/04
						S07W67	0	0	0			S07W67	Q	
						S14W62	1	0	0			S14W62	Q	
						S15W45	1	0	0			S15W45	Q	
						N08W35	0	0	0			N08W35	Q	
						S05W33	0	0	0			S05W33	E	
						N06W32	0	0	0			N06W32	Q	
						N17W22	0	0	0			N17W22	Q	
						S06W20	0	0	0			S06W20	Q	
						N16W10	2	0	0			N16W10	Q	
						S15W01	0	0	0			S15W01	Q	
						N13E10	8	1	0			N13E10	E	
						S17E19	3	0	0			S17E19	E	
						S06E28	0	0	0			S06E28	Q	
						S06E52	0	0	0			S06E52	Q	
						N10E57	1	0	0			N10E57	E	
277	04	03	283	196	031	N07W84	0	0	0		04	N07W84	Q	SOLQUIET
						S08W82	0	0	0			S08W82	Q	MAGALERT MINOR 04
						S14W75	1	0	0			S14W75	Q	
						N08W50	1	0	0			N08W50	Q	
						N06W46	0	0	0			N06W46	Q	
						S05W46	0	0	0			S05W46	Q	
						N18W35	0	0	0			N18W35	Q	
						S05W30	0	0	0			S05W30	Q	
						S16W30	0	0	0			S16W30	Q	
						N16W23	2	0	0			N16W23	Q	
						S16W15	2	0	0			S16W15	Q	
						N13W04	12	0	0			N13W04	E	
						S17E03	0	0	0			S17E03	Q	
						S27E12	0	0	0			S27E12	Q	
						S07E17	3	0	0			S07E17	Q	
						S07E37	6	0	0			S07E37	Q	
						N10E44	2	0	0			N10E44	E	
278	05	04	349	191	016	S14W90	0	0	0		05	S14W90	Q	SOLQUIET
						N08W63	3	0	0			N08W63	Q	MAGNIL
						N05W61	0	0	0			N05W61	Q	
						S05W56	0	0	0			S05W56	Q	
						N16W48	0	0	0			N16W48	Q	
						S16W44	0	0	0			S16W44	Q	
						N16W37	0	0	0			N16W37	Q	
						S25W33	0	0	0			S25W33	Q	
						S16W29	0	0	0			S16W29	Q	
						N13W17	2	0	0			N13W17	E	
						S17W10	2	0	0			S17W10	Q	
						S27W01	0	0	0			S27W01	Q	
						N07E00	0	0	0			N07E00	Q	
						S07E05	1	0	0			S07E05	Q	
						S11E08	1	0	0			S11E08	Q	
						N28E16	0	0	0			N28E16	Q	
						S06E24	2	0	0			S06E24	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

OCTOBER 1981

SUMMARY OF THE GEOALERT WWA MESSAGES

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						N20E28	0	0	0			N20E28	Q	
						N09E30	3	0	0			N09E30	E	
279	06	05	280	199	008	N09W76	0	0	0		06	N09W76	Q	SOLQUIET
						N06W73	1	0	0			N06W73	Q	MAGQUIET
						S05W73	0	0	0			S05W73	Q	
						S15W59	7	0	0			S15W59	Q	
						S17W42	0	0	0			S17W42	Q	
						N13W33	4	0	0			N13W33	E	
						S18W25	0	0	0			S18W25	Q	
						N07W14	0	0	0			N07W14	Q	
						S27W13	0	0	0			S27W13	Q	
						S08W12	0	0	0			S08W12	E	
						S10W07	0	0	0			S10W07	Q	
						S06E11	1	0	0			S06E11	E	
						N20E14	3	0	0			N20E14	Q	
						N08E18	1	0	0			N08E18	E	
						S11E32	1	0	0			S11E32	Q	
280	07	06	231	201	005	S05W87	0	0	0		07	S05W87	Q	SOLQUIET
						S17W75	0	0	0			S17W75	Q	MAGQUIET
						S17W57	0	0	0			S17W57	Q	
						N13W46	5	0	0			N13W46	E	
						S19W38	0	0	0			S19W38	Q	
						N06W28	0	0	0			N06W28	Q	
						S08W24	0	0	0			S08W24	Q	
						S11W21	1	0	0			S11W21	Q	
						S07W04	0	0	0			S07W04	Q	
						N20W01	0	0	0			N20W01	Q	
						N09E04	0	0	0			N09E04	E	
						N15E13	0	0	0			N15E13	Q	
						S11E17	1	0	0			S11E17	E	
281	08	07	173	207	020	S15W86	1	0	0	Presto Tenflare	08	S15W86	Q	SOLALERT 08/09
						S17W71	1	0	0	750 Flux Units		S17W71	Q	MAGALERT 08
						N13W60	6	0	0	07/2257Z. Tenflare		N13W60	Q	
						N07W43	0	0	0	200 Flux Units		N07W43	Q	
						S08W38	1	0	0	07/2251Z Duration		S08W38	Q	
						S11W33	0	0	0	100 Minutes.Soflare		S11W33	Q	
						S06W18	2	0	0	X3/1B 07/2308Z		S06W18	Q	
						N10W04	0	0	0	Duration 40 Minutes		N10W04	A	
						S10E04	9	2	0	Tenflare 1100 Flux		S10E04	Q	
						S18E89	2	0	1	Units 07/2305Z		S18E89	P	
										Duration 30 Minutes				
282	09	08	207	206	024	S16W82	1	0	0		09	S16W82	Q	SOLALERT 09/11
						N14W74	3	0	0			N14W74	E	MAGNIL
						N07W56	0	0	0			N07W56	Q	
						S07W52	0	0	0			S07W52	Q	
						S10W49	0	0	0			S10W49	Q	
						S22W43	0	0	0			S22W43	Q	
						S06W30	2	0	0			S06W30	E	
						N09W23	1	0	0			N09W23	E	
						S10W10	7	0	0			S10W10	E	
						N12W03	0	0	0			N12W03	Q	
						S18E48	0	0	0			S18E48	Q	
						N19E71	0	0	0			N19E71	Q	
						S20E72	3	2	0			S20E72	A	
283	10	09	257	203	019	N14W86	5	0	0	Presto Proton Event	10	N14W86	E	SOLALERT 10/12
						N08W70	1	0	0	08/1235Z 10 Protons		N08W70	Q	MAGQUIET
						S07W67	1	0	0	/cm2/sec/ster/ At		S07W67	Q	
						S10W62	0	0	0	Greater Than 10		S10W62	Q	
						S22W55	0	0	0	MEV		S22W55	Q	
						S06W44	0	0	0			S06W44	Q	
						N19W42	2	0	0			N19W42	Q	
						N09W36	0	0	0			N09W36	Q	
						S10W23	3	0	0			S10W23	E	
						N12W17	0	0	0			N12W17	Q	
						N14W13	0	0	0			N14W13	Q	
						S17E34	1	0	0			S17E34	Q	
						N17E43	0	0	0			N17E43	Q	
						S19E57	13	0	0			S19E57	A	
						N20E59	0	0	0			N20E59	Q	
284	11	10	254	214	018	N07W82	0	0	0	Presto Soflare	11	N07W82	Q	SOLALERT 11/13
						S07W80	0	0	0	M2/2B S20E45		S07W80	Q	MAGQUIET
						S11W75	0	0	0	10/1415Z Duration		S11W75	Q	
						S05W56	2	0	0	30 Minutes		S05W56	Q	
						N09W49	0	0	0			Nu9W49	Q	
						N19W54	0	0	0			N19W54	Q	
						S09W36	5	1	0			S09W36	E	
						N12W29	0	0	0			N12W29	Q	
						S16E19	2	0	0			S16E19	Q	
						N17E29	0	0	0			N17E29	Q	
						S21E38	3	0	0			S21E38	Q	
						N19E40	0	0	0			N19E40	Q	
						S18E46	15	2	0			S18E46	A	
						N22E48	0	0	0			N22E48	Q	
						N20E49	0	0	0			N20E49	Q	
						S05E67	0	0	0			S05E67	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

OCTOBER 1981

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Message serial number	Date of issue	Date of obser-vation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	Flares: Total	Flares: M	Flares: X	Outstanding events	Forecasts: Date	Forecasts: Location Lat-Long	Forecasts: Desc*	Alert Situations
285	12	11	208	221	032	S06W93	0	0	0	Presto Soflare	12	S06W93	Q	SOLALERT 12/14
						S10W87	0	0	0	11/0333Z M2/2B		S10W87	Q	MAGALERT MINOR 12/XX
						N19W70	0	0	0	S10W38 Duration 20		N19W70	Q	
						N09W63	0	0	0	Minutes. Proton		N09W63	Q	
						S10W50	5	1	0	Event Reached A		S10W50	A	
						N18W13	0	0	0	Maximum 08/1235Z		N18W13	Q	
						S18E06	0	0	0	With 83 Protons.		S18E06	Q	
						S21E25	7	0	0			S21E25	E	
						S18E33	3	0	0			S18E33	A	
						N18E35	0	0	0			N18E35	Q	
						N22E37	0	0	0			N22E37	Q	
						S20E49	0	0	0			S20E49	Q	
						S05E55	0	0	0			S05E55	Q	
286	13	12	226	234	012	N10W74	0	0	0	Presto Tenflare	13	N10W74	Q	MAJOR FLARE ALERT 13/15
						S09W65	0	0	0	220 Flux Units		S09W65	A	MAGALERT FLARE 13/15
						S12W46	0	0	0	12/0432Z Duration		S12W46	Q	
						N19W27	0	0	0	16 Minutes. Soflare		N19W27	Q	
						S16W09	0	0	0	X3/3B S22E35		S16W09	Q	
						S22E10	7	0	0	12/0622Z Duration		S22E10	A	
						S18E19	13	2	1	55 Minutes. Tenflare		S18E19	P	
						N19E22	0	0	0	17000 Flux Units		N19E22	Q	
						S20E33	0	0	0	12/0622Z Duration		S20E33	Q	
						S11E74	3	0	0	85 Minutes. Soflare		S11E74	Q	
										M1/2B S18E20				
										12/2009Z Duration				
										42 Minutes. Proton				
										Event Intensified				
										Reaching 300 Protons				
										/cm2/sec/ster/ At				
										Greater Than 10				
										MEV at 13/0145Z.				
287	14	13	273	244	012	N08W91	0	0	0	Presto Tenflare	14	N08W91	Q	SOLALERT 14/16
						S09W78	1	0	0	260 Flux Units		S09W78	Q	MAGALERT 14/15
						S13W60	0	0	0	12/2305Z Duration		S13W60	Q	
						N18W40	0	0	0	5 Minutes		N18W40	Q	
						S17W22	0	0	0			S17W22	Q	
						S20W02	3	1	0			S20W02	A	
						S17E06	12	2	0			S17E06	P	
						N19E09	0	0	0			N19E09	Q	
						S08E18	0	0	0			S08E18	Q	
						S19E20	0	0	0			S19E20	Q	
						S11E64	3	3	0			S11E64	A	
288	15	14	296	277	032	S09W94	0	0	0	Presto Soflare	15	S09W94	Q	SOLALERT 15
						S15W72	0	0	0	X3/SB S06E86		S15W72	Q	MAGALERT 15
						N17W70	0	0	0	14/1701Z Duration		N17W70	Q	
						N18W52	0	0	0	58 Minutes. Ten-		N18W52	Q	
						S15W40	1	0	0	flare 770 Flux Units		S15W40	Q	
						N18W31	0	0	0	14/1704Z Duration		N18W31	Q	
						S21W15	3	0	0	10 Minutes.		S21W15	A	
						S18W08	12	1	0			S18W08	P	
						N20W04	2	0	0			N20W04	Q	
						S09E04	0	0	0			S09E04	Q	
						S19E05	0	0	0			S19E05	Q	
						S11E51	11	1	0			S11E51	A	
						S10E76	1	0	1			S10E76	Q	
289	16	15	348	289	020	N20W67	0	0	0	Presto Soflare	16	N20W67	E	PROTON FLARE ALERT 16/17
						S16W52	0	0	0	M3/2B S24W19		S16W52	E	32218,23711,26110
						S19W29	7	2	0	15/0550Z Duration		S19W29	P	MAGNIL
						S18W20	5	0	0	14 Minutes. Tenflare		S18W20	P	
						N14W17	0	0	0	1000 Flux Units		N14W17	Q	
						N19W16	0	0	0	15/0443Z Duration		N19W16	Q	
						S20W09	2	0	0	12 Minutes. Tenflare		S20W09	Q	
						S05W11	0	0	0	490 Flux Units		S05W11	Q	
						S11E39	9	1	0	15/0639Z Duration		S11E39	A	
						N15E58	0	0	0	7 Minutes. Tenflare		N15E58	Q	
						S10E63	5	0	0	691 Flux Units		S10E63	A	
										15/2018Z Duration				
										3 Minutes.				
290	17	16	380	305	009	N20W81	1	0	0	Presto Tenflare	17	N20W81	Q	PROTON FLARE ALERT 17/18 33217
						S16W68	0	0	0	100 Flux Units		S16W68	Q	MAGQUIET
						S19W42	5	1	0	16/0350Z Duration		S19W42	P	
						S17W32	7	1	0	2 Minutes. Soflare		S17W32	P	
						N20W30	0	0	0	M1/2B S19W36		N20W30	Q	
						N14W28	2	0	0	16/1244Z Duration		N14W28	A	
						S20W22	3	0	0	39 Minutes.Tenflare		S20W22	E	
						S20W05	0	0	0	400 Flux Units		S20W05	Q	
						N05E25	0	0	0	16/1224Z Duration		N05E25	Q	
						S11E25	11	2	0	13 Minutes.		S11E25	A	
						S20E49	0	0	0			S20E49	Q	
						S09E50	4	1	0			SC9E50	A	
						S13E64	1	0	0			S13E64	Q	
291	18	17	366	305	012	S15W74	3	0	0		18	S15W74	Q	SOLALERT 18/XX
						S20W66	5	0	0			S20W66	Q	MAGQUIET
						S20W55	1	0	0			S20W55	A	

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						S18W47	9	0	0			S18W47	P	
						N20W44	1	0	0			N20W44	Q	
						N14W42	0	0	0			N14W42	Q	
						S20W18	0	0	0			S20W18	Q	
						S13W09	0	0	0			S13W09	Q	
						S10E12	8	0	0			S10E12	A	
						N17E33	0	0	0			N17E33	Q	
						S19E34	0	0	0			S19E34	Q	
						S08E37	4	0	0			S08E37	E	
						S10E50	0	0	0			S10E50	Q	
292	19	18	266	305	044	S15W88	0	0	0	Presto Tenflare	19	S15W88	Q	SOLALERT 19/21
						S20W68	0	0	0	1300 Flux Units		S20W68	E	MAGQUIET
						S18W61	4	1	0	18/1122Z Duration		S18W61	A	
						N14W57	0	0	0	10 Minutes.		N14W57	Q	
						N19W56	0	0	0			N19W56	E	
						S19W48	7	0	0			S19W48	E	
						S10W00	8	0	0			S19W00	A	
						N16E18	0	0	0			N16E18	Q	
						S09E23	3	0	0			S09E23	A	
						N17E32	0	0	0			N17E32	Q	
						S10E36	0	0	0			S10E36	Q	
293	20	19	269	281	016	S17W76	5	0	0	Presto Soflare	20	S17W76	E	SOLALERT 20/23
						N14W70	0	0	0	C8/2B S08E27		N14W70	Q	MAGQUIET
						N19W69	0	0	0	19/0319Z Duration		N19W69	Q	
						S19W62	3	0	0	19 Minutes.		S19W62	E	
						S10W14	5	0	0			S10W14	A	
						N17E06	1	0	0			N17E06	Q	
						S08E09	2	0	0			S08E09	A	
						N18E15	1	0	0			N18E15	Q	
						S10E22	0	0	0			S10E22	Q	
						S07E55	0	0	0			S07E55	Q	
						N06E61	0	0	0			N06E61	Q	
294	21	20	257	267	041	S17W88	0	0	0	Presto Magnetic	21	S17W88	E	SOLALERT 21/23
						N14W84	0	0	0	A Greater Than 20		N14W84	Q	MAGQUIET
						N18W83	2	0	0	Expected For 20		N18W83	Q	
						S18W74	0	0	0	October K=5,6 For		S18W74	E	
						S10W29	7	1	0	09-15Z		S10W29	A	
						S08W04	2	0	0			S08W04	E	
						N18W00	0	0	0			N18W00	Q	
						S10E07	0	0	0			S10E07	Q	
						S08E45	0	0	0			S08E45	Q	
						N05E47	0	0	0			N05E47	Q	
						N16E76	0	0	0			N16E76	Q	
295	22	21	259	240	022	S18W89	0	0	0		22	S18W89	E	SOLALERT 22/24
						S11W41	10	1	0			S11W41	A	MAGQUIET
						S08W17	2	0	0			S08W17	E	
						N18W14	0	0	0			N18W14	Q	
						S09W10	0	0	0			S09W10	Q	
						S08E30	0	0	0			S08E30	Q	
						N04E33	0	0	0			N04E33	Q	
						S28E50	0	0	0			S28E50	Q	
						N14E68	0	0	0			N14E68	Q	
						S30E69	0	0	0			S30E69	Q	
296	23	22	194	221	041	S11W54	7	0	0	Presto Sydney	23	S11W54	A	SOLALERT 23/XX
						N09W52	0	0	0	22/0540Z SSC		N09W52	Q	MAGALERT
						S08W31	5	0	0	22/0525Z		S08W31	E	
						N19W27	1	0	0			N19W27	Q	
						S10W22	0	0	0			S10W22	Q	
						S06E16	1	0	0			S06E16	Q	
						S27E35	1	0	0			S27E35	Q	
						S31E52	0	0	0			S31E52	Q	
						N16E54	0	0	0			N16E54	Q	
						S13E66	0	0	0			S13E66	Q	
297	24	23	145	210	019	S11W68	0	0	0		24	S11W68	E	SOLALERT 25
						N09W66	0	0	0			N09W66	Q	MAGNIL
						S08W45	0	0	0			S08W45	E	
						N19W44	1	0	0			N19W44	Q	
						S06E01	0	0	0			S06E01	Q	
						S27E22	0	0	0			S27E22	Q	
						S31E40	0	0	0			S31E40	Q	
						N16E41	0	0	0			N16E41	Q	
						S13E54	0	0	0			S13E54	Q	
298	25	24	138	203	014	S11W84	2	0	0		25	S11W84	E	SOLNIL
						N20W58	3	0	0			N20W58	Q	MAGQUIET
						S08W58	2	1	0			S08W58	E	
						S06W15	0	0	0			S06W15	Q	
						S26E07	0	0	0			S26E07	Q	
						N16E27	0	0	0			N16E27	Q	
						S31E28	0	0	0			S31E28	Q	
						S13E41	0	0	0			S13E41	Q	
						N15E75	0	0	0			N15E75	Q	
299	26	25	139	188	022	S11W99	0	0	0		26	S11W99	E	SOLQUIET
						S08W72	0	0	0			S08W72	E	MAGQUIET

ALERT PERIODS

INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

OCTOBER 1981

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location Lat-Long	No. of Flares Total	M	X		Date	Location Lat-Long	Desc*	
						N20W70	1	0	0			N20W70	Q	
						S05W29	2	0	0			S05W29	Q	
						S27W06	1	0	0			S27W06	Q	
						N16E14	0	0	0			N16E14	Q	
						S30E15	0	0	0			S30E15	Q	
						N15E45	0	0	0			N15E45	Q	
						N15E61	0	0	0			N15E61	Q	
						N08E76	0	0	0			N08E76	Q	
300	27	26	131	174	012	S08W86	0	0	0		27	S08W86	E	SOLQUIET
						N19W83	0	0	0			N19W83	Q	MAGQUIET
						S06W44	0	0	0			S06W44	Q	
						S27W18	0	0	0			S27W18	E	
						N16E01	1	0	0			N16E01	E	
						S31E01	0	0	0			S31E01	Q	
						N14E32	0	0	0			N14E32	Q	
						N15E47	0	0	0			N15E47	E	
						N07E64	0	0	0			N07E64	Q	
301	28	27	086	174	013	S05W54	7	0	0		28	S05W54	Q	SOLQUIET
						S27W30	1	0	0			S27W30	E	MAGQUIET
						N17W12	1	0	0			N17W12	E	
						N15E34	0	0	0			N15E34	Q	
						N07E49	1	0	0			N07E49	Q	
						N16E74	2	0	0			N16E74	E	
302	29	28	135	185	012	S04W68	2	0	0	Presto Mitaka	29	S04W68	E	SOLQUIET
						S25W48	0	0	0	28/0430Z Soflare		S25W48	Q	MAGQUIET
						N17W25	0	0	0	Imp 2 S05W55		N17W25	Q	
						N14E01	0	0	0	28/0400Z In Progress		N14E01	Q	
						N15E20	0	0	0			N15E20	Q	
						N07E36	0	0	0			N07E36	Q	
						S20E61	0	0	0			S20E61	Q	
						N17E62	2	0	0			N17E62	E	
						S08E76	0	0	0			S08E76	Q	
303	30	29	194	191	009	S04W82	1	0	0		30	S04W82	E	SOLQUIET
						S25W62	0	0	0			S25W62	Q	MAGQUIET
						N16W39	0	0	0			N16W39	Q	
						N13W12	0	0	0			N13W12	Q	
						N13E02	0	0	0			N13E02	Q	
						N15E07	0	0	0			N15E07	Q	
						N07E22	1	0	0			N07E22	Q	
						S12E39	0	0	0			S12E39	Q	
						N17E48	3	0	0			N17E48	Q	
						S22E47	1	0	0			S22E47	Q	
						N28E54	1	0	0			N28E54	Q	
						S07E61	0	0	0			S07E61	Q	
						S11E75	0	0	0			S11E75	Q	
304	31	30	202	204	012	S04W91	0	0	0		31	S04W91	E	SOLQUIET
						S25W77	0	0	0			S25W77	Q	MAGQUIET
						N16W51	0	0	0			N16W51	Q	
						N12W25	0	0	0			N12W25	E	
						N12W10	1	0	0			N12W10	Q	
						N15W05	0	0	0			N15W05	Q	
						N07E08	1	0	0			N07E08	Q	
						S12E26	0	0	0			S12E26	Q	
						N16E33	5	0	0			N16E33	E	
						S22E33	0	0	0			S22E33	Q	
						N27E41	1	0	0			N27E41	Q	
						S08E47	0	0	0			S08E47	Q	
						S12E65	1	0	0			S12E65	Q	
305	01	31	224	210	006	N16W65	0	0	0		01	N16W65	Q	SOLQUIET
						S01W45	0	0	0			S01W45	Q	MAGQUIET
						N12W40	0	0	0			N12W40	Q	
						N12W22	2	0	0			N12W22	Q	
						N15W18	1	0	0			N15W18	Q	
						N07W04	0	0	0			N07W04	Q	
						N13W04	3	0	0			N13W04	Q	
						S22E19	1	0	0			S22E19	Q	
						N15E20	3	0	0			N15E20	E	
						N28E27	1	0	0			N28E27	Q	
						S07E34	0	0	0			S07E34	Q	
						S12E51	6	0	0			S12E51	E	
						N19E71	0	0	0			N19E71	Q	

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups MF=Major Flare

RELATIVE SUNSPOT NUMBERS
INTERNATIONAL, R_I

	1980 FINAL*		1981 PROVISIONAL									
DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	188	171	147	148	147	132	112	62	149	121	219	216
2	218	176	141	132	182	170	133	59	140	105	183	206
3	204	152	122	154	169	148	156	44	140	112	160	219
4	217	146	113	126	183	151	152	62	112	109	170	189
5	201	131	94	133	141	157	162	55	112	113	195	195
6	196	126	71	172	138	132	178	57	85	102	220	169
7	175	108	89	158	130	152	171	61	75	107	205	171
8	201	124	115	129	142	195	177	52	62	115	208	185
9	158	117	126	124	124	199	158	58	65	121	190	177
10	158	145	120	157	127	199	148	55	96	138	202	144
11	144	148	123	178	130	200	169	66	130	136	164	131
12	120	178	126	185	120	193	183	79	139	140	138	114
13	103	185	123	153	127	197	149	86	153	134	132	183
14	108	213	106	142	128	180	140	99	145	140	148	187
15	105	217	106	124	110	212	141	104	150	153	129	212
16	112	237	81	129	128	197	127	109	161	134	138	223
17	109	198	72	120	109	213	124	119	171	125	129	219
18	113	183	79	131	95	214	119	104	161	148	145	214
19	125	166	78	138	86	203	100	85	151	175	169	189
20	112	171	88	133	120	199	77	71	145	188	134	183
21	107	170	105	142	135	170	99	87	129	222	175	151
22	119	178	99	136	134	122	106	106	138	220	172	130
23	112	177	115	98	121	108	93	119	162	200	137	107
24	128	191	120	124	125	92	96	109	196	178	148	109
25	127	200	115	137	142	119	93	127	213	189	142	101
26	140	208	120	169	133	90	105	127	206	215	171	92
27	168	206	115	175	126	73	79	133	218	222	181	63
28	167	206	142	170	135	72	93	112	208	214	195	92
29	148	208	165		160	106	92	138	159	194	191	131
30	153	187	174		184	92	83	148	173	233	190	152
31		182	159		108		92		126	201		144
MEAN	147.9	174.4	114.4	143.5	133.8	156.2	126.8	89.8	144.2	158.2	169.3	161.2

1980 YEARLY MEAN = 154.6

* ZURICH R_Z SUNSPOT NUMBER REPLACED BY INTERNATIONAL R_I SUNSPOT NUMBER BEGINNING WITH JANUARY 1981 DATA.

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO
FLUX ADJUSTED TO 1 A.U., S_a

	1980		1981									
DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	226.3	223.0	189.7	207.3	224.4*	210.8*	188.0	149.6	175.4	183.9	248.3	210.6*
2	234.2	213.3	181.4	210.1	230.6*	211.2*	193.4	144.3	168.9	182.6	242.8	204.8*
3	241.6	197.9	173.1	205.4*	238.9*	221.2	206.5*	134.9	163.3*	192.4	229.0	196.5
4	249.9*	199.4	166.8	197.5	245.6*	219.7	221.2	133.8	165.9	190.6*	233.4	191.1
5	263.3*	186.4	161.8	187.8	227.3	226.2	237.5	136.0	152.5	178.8	248.7	193.6*
6	273.9*	171.0	157.4	185.4*	212.7	235.7	231.2	140.6	148.7	179.6	263.2*	200.3
7	272.7	176.4	168.6*	180.5*	201.4	242.3	234.2	146.7	149.8	173.8	262.5*	204.1*
8	266.2*	169.3	169.2	179.1	200.6*	268.8*	222.4*	146.7*	152.4	178.4	266.3*	208.7*
9	255.4*	175.1	167.8	176.7	202.9	287.7	218.6	152.8	150.8*	180.5	256.5	205.4*
10	257.2*	180.5	164.6	185.2	203.1	268.8*	217.7*	157.1	156.5*	182.8	247.6	213.4
11	256.8*	203.5*	160.5	186.4*	199.7	272.1	228.1*	154.8	167.4	206.4	240.8	220.8
12	233.2*	240.5*	156.6	190.6*	188.8	251.9	223.4	152.8	167.7*	209.8*	234.2	236.8*
13	226.8	244.2	158.1	197.8	202.1	254.9*	221.3	152.6	174.2*	208.7	230.2	256.2
14	218.8*	253.2	153.9	200.3	208.9	256.5*	232.5	159.1	184.2	208.2	228.7*	275.6
15	205.2*	266.2	149.8	193.5	206.3*	254.9*	223.9	164.7	194.5*	225.1	230.4	287.1
16	191.1	273.0	152.5	186.9	194.9	247.5*	218.9	169.1	205.3*	221.8*	227.5	302.4
17	181.6*	254.8	155.3	188.1*	181.5	242.7	207.6	171.2	200.8*	228.7	218.2*	302.9
18	174.9	255.1	161.0	190.2*	180.8	229.2	194.4	170.1	204.7*	244.1	216.5*	296.5*
19	172.4	238.5	165.4	178.8	175.1	214.9	186.6*	165.9	220.3	254.6*	210.5*	278.6
20	161.6	235.9*	159.9*	188.3	182.7	200.9*	180.8	159.8	234.7*	269.8	200.1	257.8*
21	161.8	224.8	156.6	189.9*	189.5	196.1	180.4	153.6	228.1*	267.1*	191.2	238.2
22	171.4	231.2	156.4	199.5	189.4*	191.5	169.3*	166.1*	235.9	262.2*	183.8	218.6
23	167.2	226.8	156.8	217.9*	188.8*	204.9	159.6	171.2*	254.7*	254.8	183.8	208.2
24	174.9*	223.6	157.3	231.5*	191.4	203.0*	169.8	174.6	261.6*	258.9	182.2	201.1
25	176.4*	220.7	169.2*	233.8	199.3	203.8*	177.2	183.6	259.7	254.8	182.8	186.8
26	189.6	220.1	174.6	238.5	198.6*	198.8	173.8	193.9	273.1*	272.9*	188.8	172.8
27	185.3	220.3	175.8*	235.4	197.6	194.7*	177.8	193.4	255.8*	281.6*	202.8	171.2
28	191.4	231.5*	197.2*	224.9*	203.7*	178.2*	181.3	191.6	223.6	275.3	208.9	182.4
29	206.1*	217.2	204.2		212.4*	176.9	178.6	187.5*	213.3	259.1	204.5	187.5
30	216.3	209.9	209.1		208.2	175.3	164.6*	179.8	204.2*	265.1	203.8	201.5
31		199.8	209.1		214.8*		156.1		197.6	256.8*		207.1
MEAN	213.4	218.8	169.8	199.5	203.2	224.7	198.9	161.9	198.2	226.8	221.9	222.8

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

OCTOBER 1981

DAY OF MONTH	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	PROVISIONAL SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_I	R_A	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	274	10	216	196	210.2*	609	372	213	210.6*	205	188		59	24
2	275	11	206	177	204.6*	614	362	217	204.8*	204	184		50	19
3	276	12	219	189	196.3	593	350	199	196.5	190	176		43	19
4	277	13	189	173	191.1	602	328	200	191.1		172		46	16
5	278	14	195	179	193.6*	597	349	210	193.6*	192	179		44	17
6	279	15	169	156	200.5				200.3					
7	280	16	171	121	204.3*				204.1*					
8	281	17	185	142	201.1*	620	376	234	200.7*	197	173		54	19
9	282	18	177	173	206.0*	613	374	225	205.4*	190	166		51	19
10	283	19	144	130	214.0	630	394	252	213.4	199	166		49	20
11	284	20	131	126	220.9	654	417	255	220.0	204	173		69	25
12	285	21	114	165	237.8*	666	461	289	236.8*	219	197		2	88
13	286	22	183	179	257.5	664	448	312	256.2	239	195		65	77
14	287	23	187	203	277.0	667	462	342	275.6	253	198		63	34
15	288	24	212	202	288.8				287.1					
16	289	25	223	210	304.5	607	502	359	302.4	275	231			27
17	290	26	219	195	305.0	648	458	349	302.9	275	218			59
18	291	27	214	207	298.9*	655	471	356	296.5*	280	212			85
19	292	1	189	152	280.8	641	441	311	278.6	258	207			40
20	293	2	183	154	260.1*	650	446	311	257.8*	245	199			43
21	294	3	151	140	240.4	380	411	277	238.2	222	186			23
22	295	4	130	130	220.8				218.6					
23	296	5	107	114	210.3	584	284	244	208.2	204	169			29
24	297	6	109	96	203.3	606	287	218	201.1	189	167			16
25	298	7	101	89	188.3	549	263	186	186.0	162	150			16
26	299	8	92	74	174.1				172.0					
27	300	9	63	72	173.5	588	253	188	171.2	160	157			17
28	301	10	92	92	184.8				182.4					
29	302	11	131	131	190.2				187.5					
30	303	12	152	129	204.4	589	288	217	201.5	183	186			18
31	304	13	144	146	210.3	596	290	233	207.1	189	185			19
MEAN			161.2	149.7	224.3	609	379	258	222.8	215	185		57	32

*Adjusted for burst.

NOTE: Data gaps in AFGL Sagamore Hill data are due to equipment problems.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

	SUNSPOT NUMBERS						2800 MHz FLUX adjusted to 1 AU	
	Rz or R_I		Ra		Rs		Sa	
Date	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed
Nov 78	97.9	113	92.8	107	98.1	113	148.2	162
Dec	122.7	118	121.0	111	121.6	116	170.0	165
Jan 79	166.6	124	164.4	116	150.2	119	196.5	168
Feb	137.5	131	136.8	123	153.0	124	199.1	172
Mar	138.0	136	132.5	128	136.7	128	184.0	176
Apr	101.5	141	95.8	133	127.0	133	175.0	180
May	134.4	147	121.8	139	120.4	139	168.9	186
Jun	149.5	153	136.4	144	138.9	144	186.0	191
Jul	159.4	155	140.5	145	123.1	145	171.4	192
Aug	142.2	155	125.1	144	129.2	145	177.0	192
Sep	188.4	156	184.0	143	156.5	144	202.3	191
Oct	186.2	158	178.2	144	171.7	145	216.4	192
Nov	183.3	162	176.5	149	182.9	149	226.8	196
Dec	176.3	164	157.6	152	151.0	152	197.2	199
Jan 80	159.6	164	145.3	153	153.6	154	199.6	200
Feb	155.0	163	133.9	154	148.7	155	195.1	200
Mar	126.2	161	107.9	153	117.8	153	166.5	200
Apr	164.1	159	138.5	151	164.0	152	209.3	198
May	179.7	156	172.3	149	185.4	151	229.1	197
Jun	157.3	155	153.6	149	153.2	151	199.3	198
Jul	136.3	153*	136.0	144	144.1	151	190.8	197
Aug	135.4	150*	133.0	144	121.9	150	170.3	196
Sep	155.0	150*	150.0	146	138.8	152	185.9	198
Oct	164.7	150*	160.8	149	157.1	154	202.9	200
Nov	147.9	148*	149.9	149	168.5	153	213.4	199
Dec	174.4	142*	167.5	145	174.3	150	218.8	196
Jan 81	114.4†	140*	115.4	144	120.5	149	169.0	195
Feb	143.5†	141*	143.7	146	153.5	152	199.5	198
Mar	133.8†	143*	149.2	149	157.5	156	203.2	202
Apr	156.2†	143*	169.2	146	180.7	158	224.7	204
May	126.0†	141(± 4)*	141.3	143	152.8	155	198.9	---
Jun	89.8†	139(± 7)*	99.0	141	112.9	152	161.9	---
Jul	144.2†	137(± 9)*	154.3	139	152.1	150	198.2	---
Aug	158.2†	136(±11)*	170.4	137	182.1	149	226.0	---
Sep	169.3†	134(±13)*	174.5	136	177.7	147	221.9	---
Oct	161.2†	133(±14)*	---	135	178.6	146	222.8	---
Nov	---	130(±16)*	---	131	---	142	---	---
Dec	---	126(±17)*	---	127	---	137	---	---
Jan 82	---	122(±16)*	---	123	---	133	---	---
Feb	---	118(±16)*	---	120	---	129	---	---
Mar	---	116(±16)*	---	117	---	126	---	---
Apr	---	113(±15)*	---	114	---	123	---	---

*An asterisk denotes either a value of the observed 12-month running mean or the predicted 12-month average that is based on preliminary observations of the Zurich and International relative sunspot numbers (R_Z and R_I). Parentheses enclose the 90% confidence limits. Shaded boxes enclose the most recent smoothed values; boxes not shaded enclose predicted values. Ra is the new symbol for R_A'. All tabulated entries of Ra are final values.

†R_I replaces R_Z as of January 1981.

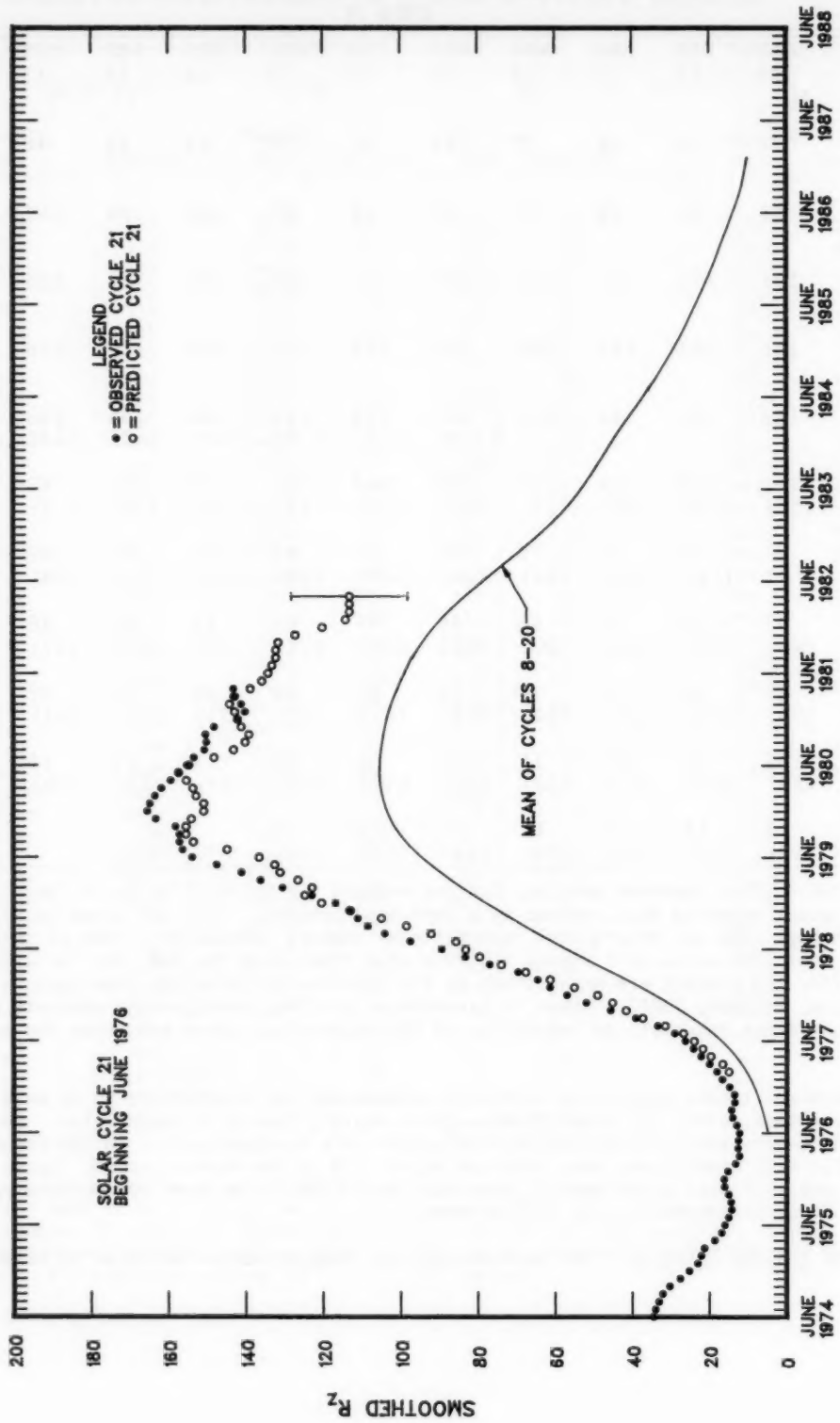
SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15	13	12	13	13	12	13	14	14	13	14	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	65	70	77	83	89	97	104	108	111	113	118
1979	124	131	137	141	147	153	155	155	156	158	162	165*
1980	164	163	161	159	156	155	153	150	150	150	148	142
1981	140	141	143	143	141	139	137	136	134	133	130	126
					(4)	(7)	(9)	(11)	(13)	(14)	(16)	(17)
1982	122	118	116	113	110	107	103	98	94	88	84	81
	(16)	(16)	(16)	(15)	(14)	(13)	(11)	(8)	(8)	(7)	(7)	(8)
1983	77	74	72	70	67	64	63	61	60	60	59	58
	(9)	(10)	(12)	(14)	(16)	(18)	(20)	(22)	(23)	(24)	(25)	(25)
1984	57	55	52	48	46	46	45	43	42	40	38	36
	(26)	(26)	(26)	(27)	(28)	(29)	(29)	(29)	(28)	(27)	(26)	(26)
1985	35	34	34	33	33	31	30	29	28	27	26	25
	(26)	(25)	(24)	(24)	(24)	(23)	(22)	(21)	(20)	(21)	(22)	(22)
1986	25	24	22	21	19	18	16	15	14	14	14	13
	(23)	(23)	(23)	(22)	(21)	(20)	(20)	(19)	(17)	(16)	(15)	(13)
1987	13	13	13	14	15	16	17					
	(12)	(12)	(12)	(12)	(14)	(15)	(15)					

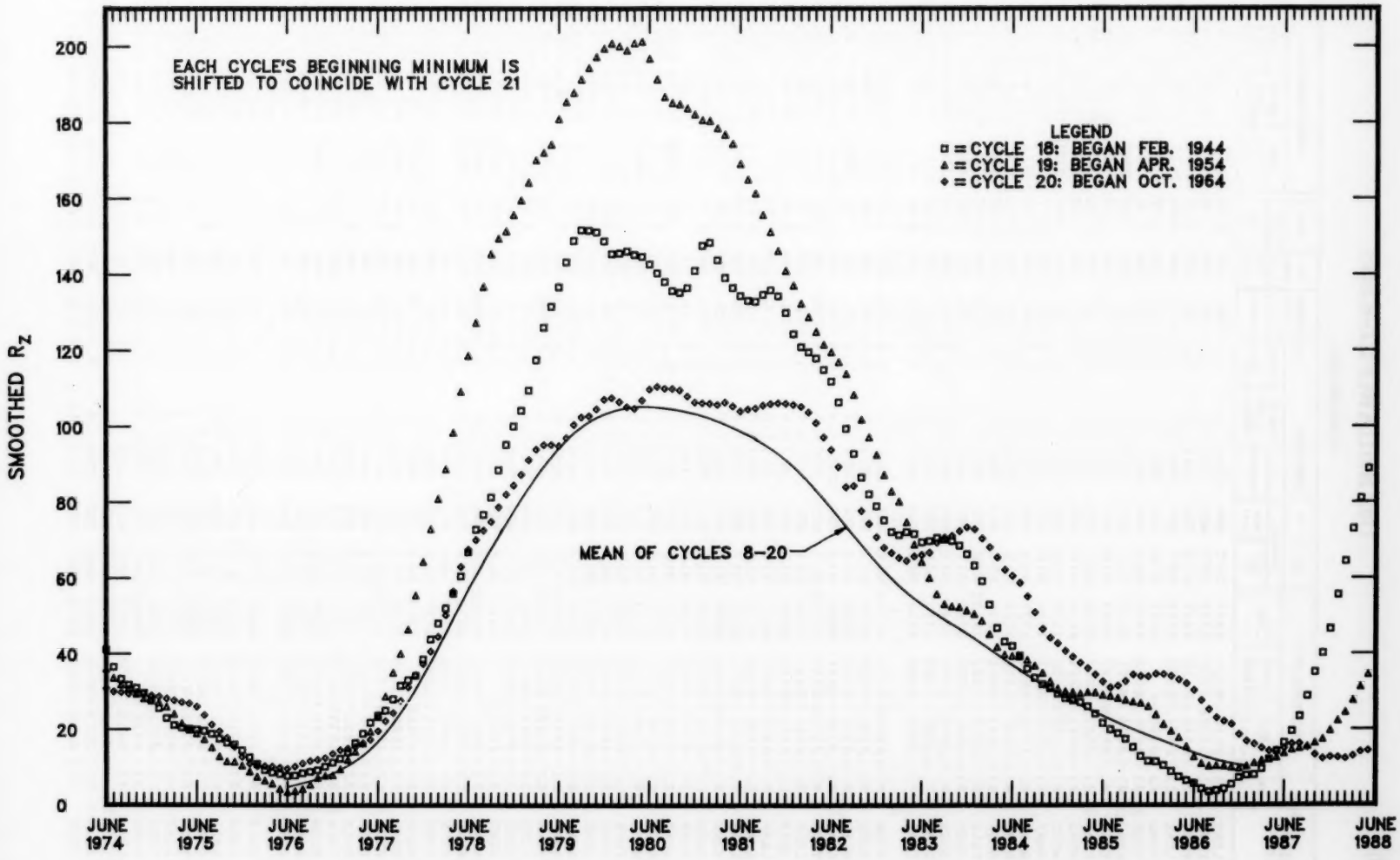
The table gives observed *smoothed* sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a left-hand bracket. They are based on final Zürich numbers through 1980 and provisional International numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1981 are included. The numbers after the bracket are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1981). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly toward the mean value. Furthermore, the method is very sensitive to the identification of a minimum epoch. In SGD issues 390-401, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Later studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we adopted a June 1976 minimum.

*MAXIMUM OF SUNSPOT CYCLE 21. The maximum smoothed sunspot number occurred in December 1979.


OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS
SMOOTHED R_Z
200
180
160
140
120
100
80
60
40
20
0
JUNE 1974
JUNE 1975
JUNE 1976
JUNE 1977
JUNE 1978
JUNE 1979
JUNE 1980
JUNE 1981
JUNE 1982
JUNE 1983
JUNE 1984
JUNE 1985
JUNE 1986
JUNE 1987
JUNE 1988
LEGEND
• = OBSERVED CYCLE 21
○ = PREDICTED CYCLE 21
SOLAR CYCLE 21
BEGINNING JUNE 1976
MEAN OF CYCLES 8-20

SUPERPOSITION OF CYCLES 18, 19, AND 20



15 Oct 81

Hα SOLAR FLARES

OCTOBER 1981

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
LEAR	01	0320	0327	0344	S07	W06	.258		1.6	24	SF	3	C		63	.0	
YUNN	01	0328E	0329	0344	S07	W05	.252		1.5	16	SN		P		80	.9	D
YUNN	01	0434	0438	0447	N11	E80	.989		7.2	13	SN		C		64	.0	
LEAR	01	0437	0439	0444	N07	E79	.985		7.1	7	SF	3	C		23	.0	
YUNN	01	0628E		0637	N10	E82	.993		7.4	9	SN		P		16	.0	D
YUNN	01	0629	0630	0648	N13	E33	.619		3.7	19	SN		C		16	.2	
WEND	01	0804	0806	0823	N17	E17	.486		2.6	19	SF		C	0806	28	.3	
YUNN	01	0805E	0807	0829	N16	E16	.465		2.5	24	SN		P		64	.7	HW
LEAR	01	0807	0807	0820	N15	E16	.452		2.5	13	SF	3	C		25	.0	
WEND	01	0911	0914	0920	N10	E79	.986		7.3	9	SF		C	0914	30	.0	
WEND	01	1122	1126	1132	N10	E78	.983		7.3	10	SN		C	1126	38	.0	
RAMY	01	1531	1533	1553	S16	E35	.662		4.3	22	SN	3	C		78	.0	
RAMY	01	1610	1619	1724	N13	E08	.363		2.3	74	SN	3	C		35	.0	
RAMY	01	1647	1652	1728	S15	W35	.655		4.3	41	SN	3	C		82	.0	
BIGB	01	1941	2004	2039	N05	E73	.960		7.3	58	1B	3	C	2004	90	.0	
PALE	01	1949	2002	2023D	N10	E73	.964		7.3	34D	1N	3	C		163	.0	
BIGB	01	2036	2038	2054	S17	E17	.486		3.1	18	SF	3	C	2038	70	.8	
BIGB	01	2059	2108	2146	N17	W04	.408		2.2	47	1N	2	C	2108	230	2.4	
LEAR	01	2306	2308	2315	N09	E70	.948		7.2	9	SF	3	C		18	.0	
LEAR	01	2359	0000	0010	N08	E68	.936		7.1	11	SF	3	C		47	.0	
YUNN	02	0204D	0214	0225E	N14	E04	.359		2.4	21E	SF		P		16	.2	
YUNN	02	0225	0229	0244	N12	E23	.493		3.8	19	SF		C		80	.9	
MITK	02	0335	0343	0500	N14	E04	.359		2.4	85	1N		C	0343	220	2.3	E
LEAR	02	0338	0344	0437	N13	E04	.343		2.5	59	1N	3	C		421	.0	
YUNN	02	0352E	0354	0416D	N13	E03	.340		2.4	24D	1N		P		321	3.3	E
LEAR	02	0448	0450	0458	N11	E22	.472		3.8	10	SF	3	C		49	.0	
LEAR	02	0451	0456	0502	S17	E25	.562		4.1	11	SF	3	C		41	.0	
LEAR	02	0452	0452	0457	N14	E03	.357		2.4	5	SF	3	C		27	.0	
LEAR	02	0505	0508	0514	S16	W37	.683		5.0	9	SF	3	C		38	.0	
LEAR	02	0554	0555	0604	S17	E31	.626		4.6	10	SF	3	C		43	.0	
YUNN	02	0556E	0556	0606	S15	E31	.610		4.6	10	SN		P		48	.6	E
LEAR	02	0721	0732	0809	N11	E20	.448		3.8	48	SN	3	C		149	.0	
YUNN	02	0726	0734	0750	N12	E20	.458		3.8	24	SB		C		64	.7	E
WEND	02	0727	0729	0731	S13	W52	.822		6.2	4	SF		C	0729	18	.3	D
ATHN	02	0728	0731	0757	N10	E18	.414		3.7	29	SB	3	C		159	.0	
WEND	02	0729	0731	0738	N13	E20	.469		3.8	9	SF		C	0731	53	.6	
YUNN	02	0824	0828	0846	N10	E46	.752		5.8	22	SN		C		48	.7	GU
YUNN	02	0838	0846	0922	N13	E19	.458		3.8	44	SN		C		80	.9	E
YUNN	02	0838	0918	0922	N12	E20	.458		3.9	44	SN		C		80	.9	E
YUNN	02	0838	0858	0922	N13	E19	.458		3.8	44	SN		C		177	1.9	K
LEAR	02	0838	0852	0950D	N11	E20	.448		3.9	72D	SN	3	C		139	.0	
YUNN	02	0840D	0846	0858E	S14	E30	.591		4.6	18E	SN		P		96	1.2	
LEAR	02	0842	0842	0845	S15	W54	.846		6.4	3	SF	3	C		18	.0	
LEAR	02	0844	0845	0853	S17	E29	.604		4.5	9	SF	3	C		82	.0	
WEND	02	0854E		0906	N13	E19	.458		3.8	12	SN		C	0854	56	.6	
WEND	02	0917	0921	0932D	N13	E19	.458		3.8	15D	SF		C	0921	16	.2	
WEND	02	0919	0926	0932	N08	E46	.745		5.8	13	SF		C	0926	50	.7	
ATHN	02	1048	1051	1112	N08	E64	.910		7.2	24	SB	3	C		80	.0	
ATHN	02	1125	1127	1139	N10	E15	.381		3.6	14	SB	3	C		95	.0	
WEND	02	1316E		1323D	N13	E17	.437		3.8	7D	SN		C	1318	30	.3	
HUAN	02	1608	1615	1630	N12	E16	.415		3.9	22	SN	2	C	1615	60	.6	E
BIGB	02	1612E	1616	1630D	N13	E16	.427		3.9	18D	SN	2	P	1616	90	1.0	
HUAN	02	1630	1637	1656	N12	E15	.405		3.8	26	SN	2	C	1637	100	1.1	E
PALE	02	1852	1857	1917	N12	E13	.386		3.8	25	SN	3	C		72	.0	D
PALE	02	1935E	1939U	1952	N12	E13	.386		3.8	17	SF	3	C		45	.0	
BIGB	02	2106	2107	2129	N12	E14	.396		3.9	23	SN	2	P	2107	70	.7	
LEAR	02	2334	2334	2346	N11	E10	.347		3.7	12	SF	3	C		38	.0	
LEAR	02	2353	0001	0034	N11	E08	.332		3.6	41	1N	3	C		205	.0	
PALE	03	0045	0046	0054	N12	E09	.353		3.7	9	SF	3	C		60	.0	
LEAR	03	0218	0228	0230	N12	E11	.368		3.9	12	SN	3	C		45	.0	
LEAR	03	0227	0232	0308	S17	W00	.401		3.1	41	SN	3	C		176	.0	
LEAR	03	0230	0230	0241	N12	E08	.346		3.7	11	SN	3	C		37	.0	
YUNN	03	0230E	0231	0242	S16	E00	.385		3.1	12	1N		P		193	2.2	E
LEAR	03	0346	0356	0417	N11	E07	.325		3.7	31	SN	3	C		83	.0	
YUNN	03	0351D	0355	0400	N13	E07	.356		3.7	9	SN		P		80	.8	E
YUNN	03	0440		0450D	N07	W32	.569		5.6	10D	SN		P		32	.4	E
LEAR	03	0444	0451	0517	N05	W31	.545		5.5	33	SN	3	C		39	.0	
LEAR	03	0510	0513	0531	N11	E06	.319		3.7	21	SB	3	C		171	.0	
LEAR	03	0543	0544	0553	N05	E50	.780		7.0	10	SF	3	C		26	.0	
YUNN	03	0628	0632	0636	S03	E48	.753		6.9	8	SN		C		32	.5	E

Hα SOLAR FLARES

OCTOBER 1981

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
ATHN	03	0654E		0711D	N13	E06	.350		3.7	17D	SB	3	C		95	.0	
LEAR	03	0657	0701	0719	N11	E04	.310		3.6	22	SN	3	C		52	.0	
LEAR	03	0716	0722	0729	N10	W17	.402		4.6	13	SF	3	C		41	.0	
LEAR	03	0720	0729	0739	S09	E46	.748		6.8	19	SF	3	C		30	.0	
LEAR	03	0725	0727	0735	N12	E05	.330		3.7	10	SN	3	C		50	.0	
YUNN	03	0809	0819	0844	N13	E05	.346		3.7	35	SN		C		64	.7	E
ISTA	03	0827		0830	S06	E26	.483		5.3	3	SF				0	.0	E
LEAR	03	0836	0845	0925	S15	W59	.886		7.8	49	1N	3	C		125	.0	
YUNN	03	0837	0849	0903	S15	W60	.893		7.9	26	SN		C		32	.7	E
ATHN	03	0843	0847	0919	S14	W65	.925		8.2	36	SB	2	C		111	.0	
ATHN	03	1026E	1031	1035D	S06	E48	.761		7.0	9D	SB	2	C		159	.0	
RAMY	03	1154	1245	1341	N13	E05	.346		3.9	107	1B	3	C		291	.0	
ATHN	03	1156	1203	1226D	N13	E06	.350		3.9	30D	SN	2	C		143	.0	
RAMY	03	1219	1221	1236	S06	E25	.469		5.4	17	SF	3	C		45	.0	
RAMY	03	1248	1251	1311	S17	W85	.999		9.9	23	SF	3	C		52	.0	
RAMY	03	1249	1252	1322	S06	E46	.739		7.0	33	SN	3	C		33	.0	
RAMY	03	1358	1405	1409	S06	E23	.441		5.3	11	SF	3	C		20	.0	
RAMY	03	1359	1409	1421	N12	E03	.323		3.8	22	SF	3	C		31	.0	
RAMY	03	1424	1424	1430	N13	E02	.338		3.7	6	SF	3	C		34	.0	
RAMY	03	1533	1534	1601	S05	E41	.676		6.7	28	SF	3	C		23	.0	
HUAN	03	1616E		1622	N13	E02	.338		3.8	6	SN	1	P	1618	20	.2	D
HOLL	03	1617	1618	1631	N13	E00	.336		3.7	14	SF	3	C		57	.0	
HOLL	03	1713	1714	1734	S07	E21	.423		5.3	21	SF	3	C		28	.0	
HOLL	03	1844	1848	1918	N13	E47	.773		7.3	34	SF	3	C		36	.0	
BIGB	03	1906	1918	1930D	N10	E32	.587		6.2	24D	SF	3	P	1918	100	1.2	
HOLL	03	1910	1913	1946	N10	E31	.575		6.1	36	SN	3	C		180	.0	
HOLL	03	2006	2033	2044	N13	W02	.338		4.0	38	SN	3	C		60	.0	
BIGB	03	2006	2030	2046	N13	W02	.338		4.0	40	SN	2	C	2030	70	.7	
HOLL	03	2052	2101	2122	S08	E41	.687		6.9	30	SF	3	C		49	.0	
HOLL	03	2207	2208	2240	S07	E38	.647		6.8	33	SN	3	C		36	.0	
HOLL	03	2208	2212	2223	N12	W03	.323		4.1	15	SF	3	C		54	.0	
BIGB	03	2209	2211	2235	S07	E38	.647		6.8	26	SN	2	C	2211	90	1.1	
HOLL	03	2211	2223	2251	N13	W21	.479		5.5	40	SF	3	C		151	.0	
LEAR	04	0030	0032	0055	N06	W43	.704		7.2	25	SF	3	C		29	.0	
LEAR	04	0059	0107	0132	N11	E43	.723		7.3	33	SN	3	C		173	.0	
PALE	04	0100	0103	0121	N13	E44	.742		7.3	21	SF	3	C		93	.0	
YUNN	04	0122E	0123	0134	N14	E44	.746		7.4	12	SF		P		64	.9	
LEAR	04	0349	0353	0406	S09	E37	.643		6.9	17	SF	3	C		34	.0	
LEAR	04	0358	0401	0410	N10	E42	.707		7.3	12	SF	3	C		73	.0	
LEAR	04	0358	0359	0411	S19	E06	.442		4.6	13	SF	3	C		29	.0	
ATHN	04	0636	0641	0702	N13	E01	.336		4.3	26	SB	3	C		111	.0	
LEAR	04	0641	0641	0653	N12	W08	.345		4.9	12	SF	3	C		53	.0	
RAMY	04	1648	1650	1658	S04	E29	.512		6.9	10	SF	3	C		44	.0	
RAMY	04	1740	1747	1808D	N07	W56	.843		8.9	28D	1F	3	C		168	.0	
HOLL	04	2053	2054	2114	N08	W58	.863		9.2	21	SF	3	C		26	.0	
HOLL	04	2241	2242	2315	N11	W17	.413		6.2	34	SN	2	C		47	.0	
HOLL	04	2314	2323	2333	N08	E10	.303		5.7	19	SF	3	C		22	.0	
LEAR	05	0151	0155	0222	S14	W45	.756		8.5	31	SN	3	C		115	.0	
PALE	05	0152	0152	0207	S15	W45	.761		8.5	15	SF	3	C		28	.0	
LEAR	05	0155	0155	0207	N05	W56	.839		9.3	12	SF	3	C		28	.0	
LEAR	05	0215	0216	0221	N11	W20	.447		6.6	6	SF	3	C		33	.0	
LEAR	05	0244	0247	0249	S15	W47	.781		8.6	5	SN	3	C		76	.0	
LEAR	05	0303	0303	0308	N19	E26	.590		7.1	5	SF	3	C		60	.0	
YUNN	05	0400	0404	0405D	N20	E24	.581		7.0	5D	SN		C		48	.6	E
WEND	05	0851	0914	0953	S14	W60	.891		9.9	62	SN		C	0914	44	.9	
LEAR	05	0920	0925	0947	S17	W49	.807		9.1	27	SF	3	C		69	.0	
WEND	05	0944	0955	1010	N08	W53	.817		9.4	26	SF		C	0955	25	.4	
RAMY	05	1319	1319	1333	N20	E20	.545		7.1	14	SF	3	C		35	.0	
RAMY	05	1419	1421	1427	N12	W28	.551		7.7	8	SN	3	C		61	.0	
RAMY	05	1556	1634	1641	S15	W55	.854		9.8	45	SN	3	C		36	.0	
BIGB	05	1823	1827	1902	S14	W59	.883		10.2	39	SN	3	C	1827	70	1.4	
PALE	05	1828	1840	1844	S15	W57	.870		10.0	16	SF	3	C		27	.0	
BIGB	05	1925	1928	1948	N14	W49	.796		9.5	23	SN	3	C	1928	80	1.3	
PALE	05	1926	1929	1934	N13	W46	.763		9.3	8	SF	3	C		17	.0	
BIGB	05	2002	2012	2050	S14	W60	.891		10.3	48	SN	3	C	2012	70	1.4	
BIGB	05	2144	2145	2203	N10	W30	.561		8.2	19	SN	3	C	2145	60	.7	
YUNN	06	0046E	0049	0051	N11	W33	.605		8.5	5	SN		P		80	1.0	ET
YUNN	06	0046E	0049	0107	S09	E30	.554		8.3	21	SN		P		96	1.2	T
YUNN	06	0103D	0107	0107D	S15	W62	.907		10.7	4D	SN		P		48	1.1	

Hα SOLAR FLARES

OCTOBER 1981

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. HER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
YUNN	06	0129D	0136	0137D	S09	E30	.554		8.3	8D	SN		P		48	.6	ET
LEAR	06	0546	0602	0642	N11	W33	.605		8.7	56	1B	3	C		270	.0	
YUNN	06	0609E		0615	N11	W34	.617		8.8	6	1N		P		193	2.4	T
YUNN	06	0609E	0612	0634	S09	E28	.529		8.4	25	SN		P		64	.8	ET
ISTA	06	0643		0737	S12	E23	.491		8.0	54	SN				0	.0	E
YUNN	06	0651D	0700	0707	N11	W38	.665		9.1	16	SN		P		32	.4	ET
ISTA	06	0652		0701	N11	W41	.700		9.4	9	SF				0	.0	E
YUNN	06	0655	0700	0702	S09	E27	.516		8.3	7	SN		C		32	.4	ET
ISTA	06	0658		0705	N11	W34	.617		8.8	7	SN				0	.0	D
LEAR	06	0712	0719	0740	S11	W11	.352		7.1	28	SF	3	C		29	.0	
LEAR	06	0718	0731	0747D	S11	E27	.531		8.3	29D	1B	3	C		250	.0	
YUNN	06	0725E	0727	0727D	S10	E27	.523		8.3	2D	SN		P		161	1.9	T
YUNN	06	0725E	0737	0803	S09	E28	.529		8.4	38	SN		P		32	.4	DKT
YUNN	06	0725E	0731	0731D	S09	E27	.516		8.3	6D	SN		P		129	1.6	ET
YUNN	06	0747	0755	0807	S09	E27	.516		8.3	20	SN		C		48	.6	ET
YUNN	06	0855D	0859	0919	N11	W36	.641		9.1	24	SN		P		64	.8	ET
YUNN	06	0900	0906	0916D	S10	E26	.510		8.3	16D	SN		P		96	1.2	
ATHN	06	0900E	0903U	0906	N11	W35	.629		9.0	6	SB	3	C		137	.0	
UPIC	06	0950E		1005	N12	W35	.635		9.0	15	SF		P	0950	41	.5	
UPIC	06	1105E	1105U	1135	N12	W35	.635		9.1	30	SN		P	1105	61	.8	K
RAMY	06	1250	1250	1324	N12	W40	.693		9.5	34	SF	3	C		36	.0	
RAMY	06	1329	1335	1405	N13	W40	.698		9.6	36	SN	3	C		110	.0	
UPIC	06	1330	1335	1340D	N11	W38	.665		9.4	10D	SN		P	1335	61	.8	
BIGB	06	1623	1629	1700	N10	W40	.683		9.7	37	SN	3	C	1629	70	.9	
BIGB	06	1812	1821	1848	N10	W41	.695		9.8	36	SN	3	C	1821	70	1.0	
PALE	06	1818	1818	1825	N12	W40	.693		9.8	7	SF	3	C		21	.0	
LEAR	07	0102	0104	0111	N12	W45	.748		10.4	9	SF	3	C		22	.0	
YUNN	07	0124	0126	0134	N11	W45	.744		10.4	10	SN		C		16	.2	
YUNN	07	0156	0208	0246D	N14	E90	1.000		13.8	50D			P		0	.0	A
YUNN	07	0302E	0316	0326	S09	E16	.377		8.3	24	SN		P		48	.5	E
LEAR	07	0310	0316	0334	S10	E16	.389		8.3	24	SF	3	C		46	.0	
YUNN	07	0317	0320	0323	S16	W85	.999		13.5	6	SN		C		64	.0	D
LEAR	07	0347	0348	0354	S10	E16	.389		8.4	7	SF	3	C		23	.0	
LEAR	07	0448	0449	0458	N11	W51	.806		11.0	10	SN	3	C		45	.0	
LEAR	07	0600	0603	0624	N14	W48	.786		10.8	24	SN	3	C		118	.0	
YUNN	07	0614E	0615	0645	S14	E90	1.000		14.0	31			P		0	.0	A
YUNN	07	0625	0628	0645	S09	W29	.541		9.4	20	SN		C		48	.6	E
LEAR	07	0626	0627	0658	S08	W27	.508		9.3	32	SF	3	C		99	.0	
YUNN	07	0827	0832	0905	S09	E13	.344		8.3	38	SN		C		64	.7	E
YUNN	07	0827	0844	0905	S09	E13	.344		8.3	38	SN		C		48	.5	K
LEAR	07	0837	0841	0910	S10	E13	.357		8.3	33	SN	3	C		77	.0	
ATHN	07	1332E	1335U	1336D	S11	E11	.351		8.4	4D	SB	3	C		127	.0	
BIGB	07	1633	1636	1705	N12	W56	.854		11.9	32	SN	3	C	1636	100	1.8	
HOLL	07	1642	1642	2025	N08	W48	.766		11.3	223	1N	3	C		227	.0	
BIGB	07	1721	1723	1751	N21	W08	.477		8.3	30	SF	3	C	1723	80	.8	
RAMY	07	1731	1811	1846	S10	E07	.306		8.3	75	SB	3	C		91	.0	
BIGB	07	1735	1814	1840	S10	E08	.313		8.3	65	SB	3	C	1814	70	.7	
HOLL	07	1736	1738	1802	N21	W07	.473		8.3	26	SF	3	C		98	.0	
HOLL	07	1736	1817	2025	S10	E06	.300		8.2	169	1B	3	C		303	.0	
PALE	07	1753E	1756	1800	S10	E08	.313		8.3	7	SF	3	C		23	.0	D
PALE	07	1802	1812	1833	S10	E06	.300		8.2	31	SN	3	C		68	.0	
HOLL	07	1941	1942	1959	S06	W15	.333		8.9	18	SF	3	C		27	.0	
BIGB	07	2030	2034	2051	S18	W66	.937		12.8	21	1N	3	C	2034	100	.0	
HOLL	07	2032	2033	2048	S15	W64	.920		12.7	16	2N	3	C		312	.0	
PALE	07	2037E	2037U	2048	S17	W65	.929		12.7	11	SF	3	C		38	.0	
HOLL	07	2114E	2228U	2301	S10	E06	.300		8.3	107	SB	3	C		113	.0	
BIGB	07	2202	2204	2222	N10	W62	.898		12.6	20	SN	3	C	2204	70	1.5	
BIGB	07	2222	2230	2255	S11	E04	.307		8.2	33	SN	3	C	2230	70	.7	
PALE	07	2224	2226	2239	S10	E03	.287		8.2	15	SF	3	C		41	.0	D
LEAR	07	2236E	2238U	2246	N14	W57	.867		12.2	10	SF	3	C		18	.0	
LEAR	07	2236E	2239U	2244	S09	E05	.279		8.3	8	SF	3	C		43	.0	
BIGB	07	2259	2307	0004	S13	E90	1.000		14.7	65	1B	3	C	2307	80	.0	
HOLL	07	2315E	2315U	2338D	S19	E88	1.000		14.6	23D	1B	3	C		0	.0	
HOLL	07	2319	2324	2338D	S10	E03	.287		8.2	19D	SB	3	C		137	.0	
BIGB	07	2319	2324	2349	S11	E04	.307		8.3	30	SB	3	C	2324	180	1.8	
LEAR	07	2320	2324	2345	S11	E03	.303		8.2	25	SB	3	C		147	.0	
LEAR	07	2330	2332	2346	S08	W13	.332		9.0	16	SF	3	C		88	.0	
LEAR	07	2348	2352	0001	S11	E08	.328		8.6	13	SN	3	C		58	.0	
LEAR	08	0036	0037	0059	S06	W16	.345		9.2	23	SF	3	C		72	.0	
LEAR	08	0143	0145	0149	S10	E02	.284		8.2	6	SB	3	C		33	.0	

Hα SOLAR FLARES

OCTOBER 1981

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
LEAR	08	0145	0146	0149	N08	W14	.342		9.1	4	SF	3	C		37	.0	
LEAR	08	0154	0155	0200	S19	E78	.987		13.9	6	SF	3	C		0	.0	
LEAR	08	0158	0210	0217	S10	E03	.286		8.3	19	SF	3	C		60	.0	
LEAR	08	0230	0235	0256	S11	E05	.310		8.5	26	SB	3	C		106	.0	
MANI	08	0237E	0237U	0240D	S11	E04	.306		8.4	3D	SF	1	V		30	.3	F
LEAR	08	0242	0242	0249	N12	W61	.894		12.7	7	SF	3	C		27	.0	
LEAR	08	0256	0306	0311	N13	W61	.896		12.7	15	SF	3	C		38	.0	
LEAR	08	0310	0311	0324	S09	W15	.365		9.3	14	SF	3	C		73	.0	
LEAR	08	0329	0330	0336	S10	E03	.286		8.4	7	SF	3	C		24	.0	
LEAR	08	0638	0641	0645	S21	E74	.976		13.8	7	SF	3	C		0	.0	
LEAR	08	0645	0645	0653	N12	W63	.908		13.0	8	SN	3	C		27	.0	
LEAR	08	0652	0657	0703	S10	W18	.411		9.6	11	SF	3	C		23	.0	
LEAR	08	0654	0702	0709	S10	E02	.284		8.4	15	SF	3	C		81	.0	
LEAR	08	0741	0748	0756	S09	W01	.265		8.4	15	SF	3	C		48	.0	
LEAR	08	0832	0929	0950D	S15	W67	.938		13.4	78D	SF	3	C		42	.0	
LEAR	08	0836	0852	0950D	S20	W54	.860		12.4	74D	SF	3	C		65	.0	
UPIC	08	0917E		0946D	S16	W58	.880		12.7	29D	1N		P	0917	184	4.0	F
BOUL	08	1440E	1452U	1502	N13	W69	.947		13.8	22	1N	3	C		140	.0	
BIGB	08	1603	1605	1633	S12	W01	.315		8.7	30	SB	3	C	1605	140	1.4	
RAMY	08	1604	1605	1607D	S11	W03	.302		8.9	3D	SB	3	C		177	.0	
BIGB	08	1916	1919	1941	N10	W70	.949		14.1	25	SN	3	C	1919	80	.0	
LEAR	08	2348	2352	0001	S11	E08	.327		9.6	13	SN	3	C		58	.0	
LEAR	09	0301	0305	0323	S20	E64	.928		13.9	22	SF	3	C		46	.0	
PURP	09	0310E	0311	0323	S20	E64	.928		13.9	13	1N		C	0311	138	.0	
LEAR	09	0431	0432	0440	N13	W73	.966		14.7	9	SF	3	C		0	.0	
LEAR	09	0512	0514	0532	S10	W12	.345		10.1	20	SF	3	C		35	.0	
LEAR	09	0646	0703	0724	S18	E62	.912		13.9	38	1N	3	C		110	.0	
ATHN	09	0706E	0708U	0729	S19	E65	.932		14.2	23	SB	1	C		111	.0	D
LEAR	09	0711	0712	0726	S04	W54	.818		13.3	15	SF	3	C		27	.0	
LEAR	09	0720	0721	0729	N13	W75	.974		14.9	9	SF	3	C		0	.0	
UPIC	09	0820	0825U	0830	S21	E62	.918		14.0	10	SF		P	0825	61	1.5	
UPIC	09	0905	0915	0940	S21	E62	.918		14.0	35	SN		P	0915	82	2.1	K
UPIC	09	1005	1030	1050	S21	E62	.918		14.1	45	1N		P	1030	122	3.1	
WEND	09	1027	1029	1040	S19	E60	.901		13.9	13	SF		C	1029	50	1.1	
RAMY	09	1104	1152	1232	S18	E60	.899		14.0	88	1N	4	C		216	.0	
UPIC	09	1115	1120U	1130U	S21	E62	.918		14.1	15U	SN		P	1120	61	1.5	
UPIC	09	1140	1155	1220	S21	E62	.918		14.1	40	1N		P	1155	143	3.6	
WEND	09	1140	1155	1205	S19	E58	.887		13.8	25	SN		C	1155	94	1.9	
RAMY	09	1236	1306	1359	S18	E59	.891		13.9	83	1B	4	C		231	.0	
UPIC	09	1300	1305	1325U	S21	E62	.918		14.2	25U	SN		P	1305	61	1.5	
WEND	09	1303	1307	1324	S19	E58	.887		13.9	21	1N		C	1307	113	2.3	
ATHN	09	1308E	1309	1339	S19	E65	.932		14.4	31	SB	1	C		127	.0	
HOLL	09	1512	1512	1529	S16	E39	.702		12.6	17	SF	3	C		18	.0	
HOLL	09	1517	1520	1605	N08	W66	.923		14.6	48	SF	3	C		18	.0	
HOLL	09	1528	1532	1606	S20	E59	.896		14.1	38	SN	3	C		84	.0	
BIGB	09	1531	1536	1557	S19	E60	.901		14.1	26	1N	3	C	1536	100	2.1	
HOLL	09	1628	1637	1709	S21	E60	.905		14.2	41	SN	3	C		26	.0	
HOLL	09	1653	1657	1706	N11	W82	.993		15.9	13	SF	3	C		0	.0	
HOLL	09	1712	1715	1727	S21	E59	.899		14.1	15	SF	3	C		16	.0	
BIGB	09	1743	1746	1807	S11	W17	.410		11.0	24	SN	3	C	1746	80	.9	
BIGB	09	1745	1831	1856	S18	E68	.947		14.8	71	1N	3	C	1831	150	.0	
HOLL	09	1745	1746	1805	S11	W17	.410		11.0	20	SN	3	C		72	.0	
HOLL	09	1745	2118	2132	S20	E55	.867		13.9	227	SB	3	C		97	.0	
HOLL	09	1745	1830	1831D	S18	E68	.947		14.8	46D	1N	3	C		156	.0	
RAMY	09	1751	1832	1906	S13	E55	.847		13.9	75	SN	3	C		64	.0	
HOLL	09	1812	1814	1821	N16	W79	.988		15.7	9	SF	3	C		0	.0	
BIGB	09	1836	2118	2144	S20	E55	.867		13.9	188	SB	3	C	2118	70	1.3	
HOLL	09	1904	1917	1930	S10	W20	.434		11.3	26	SF	3	C		25	.0	
PALE	09	1913	1915	1926D	S19	E55	.864		13.9	13D	SF	3	C		28	.0	
HOLL	09	1951	1956	2001	N13	W78	.984		15.7	10	SF	3	C		0	.0	
PALE	09	2117	2118	2132	S16	E63	.915		14.6	15	SF	3	C		51	.0	
HOLL	09	2133	2158	2355D	S20	E54	.859		13.9	142D	SN	3	C		29	.0	
PALE	09	2216E	2252U	2323	S19	E54	.856		14.0	67	SF	3	C		14	.0	
LEAR	10	0122	0124	0146	S21	E51	.838		13.9	24	SF	3	C		54	.0	
PALE	10	0123	0127	0131	S19	E51	.831		13.9	8	SF	3	C		59	.0	
LEAR	10	0221	0221	0227	S10	W22	.458		11.7	6	SF	3	C		20	.0	
PEKG	10	0234E	0235	0242	S19	W45	.777		13.5	8	SF		P	0235	55	.9	D
PEKG	10	0418	0419	0435	S16	E30	.603		12.4	17	SN		C	0419	34	.4	E
LEAR	10	0528	0552	0606	S21	E48	.813		13.8	38	SB	3	C		121	.0	
PEKG	10	0530	0535	0546	S21	E48	.813		13.8	16	SB		C	0535	97	1.7	E

Hα SOLAR FLARES

OCTOBER 1981

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
PEKG	10	0550	0552	0557	S21	E48	.813		13.8	7	SN		C	0552	84	1.5	E
PEKG	10	0559	0603	0612	S19	E33	.658		12.7	13	SB		C	0603	13	.2	DH
ATHN	10	0600E		0633	S17	E32	.633		12.6	33	SB	2	C		80	.0	D
LEAR	10	0648	0716	0731	S21	E49	.822		14.0	43	SN	3	C		71	.0	
MANI	10	0654E	0654U	0700D	S21	E49	.822		14.0	6D	SF	1	V		30	.5	
PEKG	10	0655	0659	0724	S21	E48	.813		13.9	29	SN		P	0659	55	.9	E
ISTA	10	0715E		0725	S21	E51	.838		14.1	10	SF				0	.0	BE
PURP	10	0740	0806	0838D	S21	E49	.822		14.0	58D	1B		C	0806	131	2.4	
BUCA	10	0750		0855	S20	E47	.800		13.9	65	SF		P	0810	86	1.5	
LEAR	10	0750	0808	0854	S21	E48	.813		13.9	64	SN	3	C		102	.0	
ATHN	10	0804	0808	0929	S19	E51	.831		14.2	85	SB	2	C		159	.0	
MANI	10	0808E	0808U	0813D	S20	E51	.835		14.2	5D	SN	1	V		50	.9	
PEKG	10	0820	0828	0830D	S18	E58	.884		14.7	10D	SN		P	0828	42	.9	E
PEKG	10	0820	0828	0847	S22	E49	.826		14.0	27	SN		P	0828	50	.9	D
PEKG	10	0850E	0854U	0859D	N17	E02	.396		10.5	9D	SN		P	0854	105	1.1	E
ISTA	10	0855		0859	S18	E32	.640		12.8	4	SF				0	.0	D
LEAR	10	0856	0900	0903	S19	E33	.658		12.8	7	SF	3	C		40	.0	
LEAR	10	0907	0940	0945D	S21	E48	.813		14.0	38D	1N	3	C		188	.0	
ATHN	10	0929	0936	1103	S19	E51	.831		14.2	94	1B	2	C		222	.0	
ATHN	10	1244	1249	1324	S19	E51	.831		14.4	40	1B	2	C		270	.0	
RAMY	10	1332	1427	1622	S20	E44	.773		13.9	170	2B	3	C		573	.0	
RAMY	10	1535	1537	1544	S06	W52	.802		14.5	9	SF	3	C		23	.0	
HOLL	10	1620E	1659	1704	S17	E52	.833		14.6	44	SN	2	C		47	.0	
HOLL	10	1658E	1702U	1747D	S20	E43	.763		13.9	49D	SB	2	C		62	.0	
BIGB	10	1700	1705	1719	S19	E45	.777		14.1	19	SB	3	C	1705	100	1.5	
BIGB	10	1737	1750	1834	S20	E44	.773		14.0	57	SN	3	C	1750	60	.9	
PALE	10	1738	1738	1752	S20	E43	.763		14.0	14	SF	3	C		24	.0	
RAMY	10	1855	1918	1947	S10	W32	.585		13.2	52	SN	3	C		65	.0	
RAMY	10	1857	1858	1909	S06	W55	.831		14.9	12	SN	3	C		28	.0	
HOLL	10	1908	1919	1928	S10	W33	.597		13.3	20	SF	3	C		45	.0	
BIGB	10	1908	1922	2032	S19	E50	.822		14.5	84	SN	3	C	1922	80	1.3	
HOLL	10	1915	2018	2038D	S16	E47	.783		14.3	83D	SN	3	C		112	.0	
BIGB	10	1940	2017	2053	S21	E43	.768		14.0	73	SN	3	C	2017	70	1.0	
PALE	10	1953	1953	2001	S20	E42	.754		14.0	8	SF	3	C		23	.0	
HOLL	10	2015E	2029	2105D	S20	E41	.744		13.9	50D	SN	2	C		71	.0	
HOLL	10	2023	2103	2105D	S10	W35	.622		13.5	42D	SB	3	C		166	.0	
BIGB	10	2052	2115	2133	S24	E49	.834		14.5	41	SB	3	C	2115	70	1.1	
BIGB	10	2058	2101	2132	S10	W35	.622		13.5	34	1B	3	C	2102	180	2.3	
RAMY	10	2107	2107	2223D	S10	W34	.610		13.4	76D	1B	3	C		204	.0	
BIGB	10	2303	2305	2320	S18	W48	.801		14.6	17	SN	3	C	2305	70	1.1	
PEKG	10	2315E	2319	2338	S17	E45	.768		14.3	23	SB		P	2319	101	1.6	E
PEKG	10	2317	2319	2335D	S21	E40	.741		14.0	18D	SN		P	2319	50	.8	E
LEAR	10	2342	2342	2346	S17	E43	.748		14.2	4	SF	3	C		61	.0	
LEAR	10	2349	2352	0036	S18	E50	.819		14.7	47	SN	3	C		43	.0	
PEKG	10	2350	2354	0015	S17	E50	.815		14.7	25	SN		P	2354	42	.7	E
PEKG	11	0433	0440	0458	S12	E09	.346		11.9	25	SB		C	0440	42	.4	D
PEKG	11	0435	0440	0452	S20	E37	.705		14.0	17	SB		C	0440	113	1.6	E
PEKG	11	0550	0558	0603	S09	W41	.689		14.3	13	SB		C	0558	126	1.8	E
YUNN	11	0624	0632	0649	S18	E40	.723		14.3	25	SN		C		48	.7	E
YUNN	11	0700E	0709	0721	S16	E45	.763		14.7	21	SN		P		32	.5	
PEKG	11	0749E	0750	0757	S10	W42	.705		14.5	8	1B		C	0750	365	5.3	F
RAMY	11	1222	1513	1814	S18	E41	.733		14.6	352	1N	3	C		264	.0	
RAMY	11	1224	1225	1331	S20	E31	.645		13.8	67	1B	3	C		223	.0	
RAMY	11	1237	1242	1304	S11	W43	.721		14.8	27	1B	3	C		282	.0	
ATHN	11	1242E	1243U	1247	S09	W41	.689		14.6	5	SB	3	C		145	.0	
RAMY	11	1436	1437	1500	S19	E31	.637		13.9	24	SN	3	C		62	.0	
RAMY	11	1506	1513	1536	S19	E30	.627		13.9	30	1B	3	C		283	.0	
RAMY	11	1552	1601	1720	S20	E29	.625		13.8	88	SB	3	C		165	.0	
RAMY	11	1723	1747	1804	S11	W46	.754		15.2	41	SF	3	C		67	.0	
RAMY	11	1804	1804	1864	S20	E31	.645		14.1	60	SN	3	C		30	.0	
MITK	11	2325E		2407	N19	W13	.473		13.0	42	SN		P	2328	0	.0	D
YUNN	12	0052	0059	0107	N19	W15	.487		13.2	15	SN		C		32	.4	
LEAR	12	0128	0314	0335	S18	E32	.639		14.5	127	1B	3	C		303	.0	
LEAR	12	0406	0410	0418	S18	E31	.629		14.5	12	SN	3	C		54	.0	
PEKG	12	0409E	0410	0412	N18	W17	.490		13.4	3	SN		P	0410	42	.5	D
PEKG	12	0409E	0410	0413	S17	E35	.664		14.8	4	SN		P	0410	105	1.4	E
LEAR	12	0426	0428	0437	S18	E31	.629		14.5	11	SN	3	C		54	.0	
LEAR	12	0428	0430	0434	S21	E24	.586		14.0	6	SF	3	C		26	.0	
LEAR	12	0438	0453	0500	S21	E23	.577		13.9	22	SN	3	C		32	.0	
PEKG	12	0444E	0445	0520	S22	E28	.633		14.3	36	SF		P	0445	42	.6	D

Hα SOLAR FLARES

OCTOBER 1981

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
LEAR	12	0451	0456	0502	S18	E31	.629		14.5	11	SN	3	C		89	.0	
LEAR	12	0509	0513	0527	S22	E27	.624		14.2	18	SN	3	C		67	.0	
LEAR	12	0512	0513	0526	S18	E31	.629		14.5	14	SN	3	C		45	.0	
PEKG	12	0512E	0513	0519	S21	E28	.624		14.3	7	SN		P	0513	55	.7	E
PEKG	12	0515	0516	0525	S18	E34	.660		14.8	10	SF		C	0516	50	.7	E
LEAR	12	0549	0551	0555	S17	E28	.588		14.3	6	SN	3	C		26	.0	
ATHN	12	0615E	0620U	0628D	S22	E35	.699		14.9	13D	1B	3	C		254	.0	
LEAR	12	0617	0647U	0923	S17	E32	.632		14.7	186	3B	3	C		1801	.0	
LEAR	12	0626	0628	0714	S20	E23	.567		14.0	48	SN	3	C		70	.0	
YUNN	12	0626E	0641	0830	S15	E31	.606		14.6	124	3B		P		1125	14.9	K
YUNN	12	0626E	0633	0830	S15	E31	.606		14.6	124	3B		P		996	13.2	FUWZ
PEKG	12	0630E	0632	0830	S17	E30	.610		14.5	120	3B		P	0632	1052	13.7	FITU
ATHN	12	1005E	1010U	1030	S12	E37	.656		15.2	25	SB	3	C		95	.0	
ATHN	12	1033E	1045U	1120D	S12	E37	.656		15.2	47D	1B	3	C		318	.0	
RAMY	12	1147	1321	1943D	S16	E24	.537		14.3	476D	1B	3	C		439	.0	
HOLL	12	1434	1612	1613	S17	E26	.567		14.6	99	SN	3	C		158	.0	
HOLL	12	1434	1618	1619	S20	E17	.515		13.9	105	SN	3	C		131	.0	
RAMY	12	1442	1442	1454	S11	E78	.983		18.5	12	SN	3	C		53	.0	
BIGB	12	1608	1613	1645	S20	E22	.558		14.3	37	SN	3	C	1613	100	1.1	
RAMY	12	1609	1618	1626	S20	E19	.531		14.1	17	SN	3	C		43	.0	
RAMY	12	1629	1632	1720	S23	E13	.526		13.7	51	SN	3	C		32	.0	
BIGB	12	1708	1710	1756	S16	E22	.515		14.4	48	1N	3	C	1710	280	3.1	
HOLL	12	1710E	1711	1852D	S20	E20	.540		14.2	102D	2N	3	C		553	.0	
PALE	12	1715E	1715U	1722	S18	E32	.639		15.1	7	SF	3	C		83	.0	
BIGB	12	1806	1807	1854	S19	E29	.616		14.9	48	SN	3	C	1807	80	.9	
PALE	12	1808	1808	1825	S15	E23	.516		14.5	17	SN	3	C		21	.0	
PALE	12	1827	1850	1901	S15	E20	.484		14.3	34	SF	3	C		82	.0	
BIGB	12	1951	2003	2044	S18	E21	.527		14.4	53	SN	3	C	2003	100	1.1	
HOLL	12	2039E	2041U	2053	S20	E16	.507		14.1	14	SN	3	C		60	.0	
HOLL	12	2044	2052	2124	S13	E89	1.000		19.5	40	SF	3	C		0	.0	
BIGB	12	2047	2054	2142	N23	E12	.521		13.8	55	SN	3	C	2054	90	.9	
HOLL	12	2049	2103	2129	N22	E13	.513		13.8	40	1F	3	C		208	.0	
HOLL	12	2054	2111	2121	S20	E12	.479		13.8	27	SF	3	C		61	.0	
HOLL	12	2104	2113	2140	S16	E22	.515		14.5	36	SB	3	C		165	.0	
BIGB	12	2109	2114	2200	S16	E23	.526		14.6	51	SN	3	C	2114	100	1.1	
HOLL	12	2125	2133	2137	S20	E14	.493		13.9	12	SF	3	C		31	.0	
BIGB	12	2212	2214	2306	S18	E20	.517		14.4	54	1B	3	C	2214	260	2.9	
HOLL	12	2218E	2219U	2245D	S16	E20	.495		14.4	27D	1B	3	C		306	.0	
PEKG	13	0010	0013	0016	S17	E17	.477		14.3	6	1N		P	0013	252	3.0	F
YUNN	13	0604E	0605	0607	S16	E13	.431		14.2	3	SN		P		32	.4	
PEKG	13	0715	0717	0725	S17	E17	.477		14.6	10	SN		P	0717	67	.8	E
PEKG	13	0717	0720	0725	S15	E85	.998		19.7	8	SF		P	0720	34	.0	D
YUNN	13	0738E	0739	0744	S23	E07	.497		13.8	6	SN		P		32	.4	E
YUNN	13	0739	0740	0744D	S13	E89	1.000		20.0	5D	SN		C		16	.0	
PEKG	13	0823	0824	0828	S16	E17	.465		14.6	5	SF		C	0824	63	.7	E
YUNN	13	0854	0858	0900	S15	W15	.435		14.5	6	SN		C		32	.4	E
BIGB	13	1609	1609	1612	S17	E12	.437		14.6	3	SB	3	C	1609	110	1.2	
BIGB	13	1646	1656	1743	S17	E15	.460		14.8	57	SF	3	C	1656	100	1.1	
BIGB	13	1810	1810	1827	S16	E10	.409		14.5	17	SN	3	C	1810	130	1.4	
BIGB	13	2113	2115	2123	S10	E69	.943		19.1	10	SN	3	C	2115	50	.0	
BIGB	13	2125	2126	2157	S17	E09	.418		14.6	32	SN	3	C	2126	60	.6	
PEKG	13	2320E	2320	2326	S21	W01	.455		14.0	6	SN		P	2320	50	.6	E
PEKG	14	0408E	0409	0412	S24	E04	.503		14.5	4	SN		P	0409	84	1.0	F
PEKG	14	0422	0428	0435	S16	E03	.377		14.4	13	1B		C	0428	252	2.8	F
MITK	14	0422	0424	0505D	S16	E01	.374		14.3	43D	1N		C	0424	190	2.1	E
YUNN	14	0628	0629	0631D	S16	E02	.375		14.4	3D	SN		P		32	.4	
LEAR	14	0923	0924	0940	S17	W01	.390		14.5	17	SN	3	C		29	.0	
LEAR	14	0928	0930	0944D	S14	E52	.822		18.3	16D	SF	3	C		18	.0	
LEAR	14	0931	0935	0943	N17	E06	.402		14.8	12	SN	3	C		63	.0	
UPIC	14	1035E		1050	S15	W01	.358		14.5	15	SN		P	1035	163	1.8	
UPIC	14	1045	1055	1112	S05	E21	.401		16.0	27	SN		P	1055	122	1.4	F
WEND	14	1049E		1101D	S05	E24	.444		16.3	12D	SF		C	1049	119	1.3	
UPIC	14	1112E	1126	1140	S15	W03	.361		14.7	28	SN		P	1126	102	1.1	
RAMY	14	1124	1205	1209	S14	E02	.343		14.6	45	SF	3	C		37	.0	
RAMY	14	1156	1203	1215	S10	E59	.874		18.9	19	SN	3	C		50	.0	
UPIC	14	1200E	1200U	1210	S13	E01	.325		14.6	10	SF		P	1200	41	.5	E
RAMY	14	1213	1220	1239	S16	W00	.374		14.5	26	SN	3	C		90	.0	
UPIC	14	1230	1241	1300	S05	E21	.401		16.1	30	SF		P	1241	122	1.4	F
RAMY	14	1255	1328	1346	S07	E59	.868		19.0	51	SN	3	C		51	.0	
UPIC	14	1300E		1305U	S07	E58	.860		18.9	5U	SF		P	1300	41	.8	E

Hα SOLAR FLARES

OCTOBER 1981

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
RAMY	14	1305	1306	1343	S16	W01	.374		14.6	38	1B	3	C		248	.0	
RAMY	14	1306	1310	1325	S23	W09	.504		15.2	19	SN	3	C		68	.0	
RAMY	14	1349	1353	1405	S08	E56	.844		18.8	16	SN	3	C		81	.0	
RAMY	14	1355	1402	1415	S20	W08	.456		15.2	20	SF	3	C		34	.0	
RAMY	14	1439	1444	1533	S07	E60	.877		19.1	54	1B	3	C		177	.0	
RAMY	14	1526	1527	1537	S16	W01	.374		14.7	11	SN	3	C		82	.0	
BIGB	14	1642	1645	1701	S16	E65	.927		19.6	19	SB	3	C	1645	90	.0	
HOLL	14	1645E	1645U	1652D	S11	E59	.876		19.1	7D	2B	2	C		0	.0	D
RAMY	14	1705	1710	1803	S06	E86	.998		21.2	58	SB	3	C		0	.0	
BIGB	14	1705	1715	1740	S06	E90	1.000		21.5	35	1B	3	C	1715	90	.0	
RAMY	14	1711	1807	1827	S17	W04	.396		15.0	76	SB	3	C		149	.0	
RAMY	14	1736	1739	1801	S17	W29	.598		16.9	25	SF	3	C		26	.0	
RAMY	14	1758	1803	1817	S23	W11	.513		15.6	19	SF	3	C		34	.0	
BIGB	14	1807	1810	1826	S18	W04	.411		15.1	19	SF	3	C	1810	70	.7	
HOLL	14	1810E	1810U	1841D	S18	W04	.411		15.1	31D	SB	2	C		80	.0	
RAMY	14	1853	1859	1917	S16	W05	.383		15.2	24	SN	3	C		97	.0	
BIGB	14	1853	1900	1914	S18	W04	.411		15.1	21	SF	3	C	1900	50	.5	
RAMY	14	1858	1900	1905	S08	E53	.816		18.8	7	SN	3	C		23	.0	
BIGB	14	1920	1924	1941	S28	W04	.562		15.1	21	SN	3	C	1924	160	1.6	
PALE	14	1923	1926	1929	S16	W05	.383		15.2	6	SF	3	C		58	.0	
BIGB	14	2025	2028	2034	S08	E56	.844		19.1	9	SF	3	C	2028	60	1.1	
BIGB	14	2054	2056	2123	S17	W06	.402		15.3	29	SN	3	C	2056	80	.8	
BIGB	14	2226	2228	2252	S18	W03	.409		15.2	26	SF	3	C	2228	70	.7	
BIGB	14	2301	2305	2318D	S23	W11	.513		15.8	17D	SN	3	P	2305	120	1.3	
LEAR	14	2306	2308	2324	S10	E55	.839		19.1	18	SF	3	C		22	.0	
YUNN	15	0209	0210	0212	S09	E82	.993		21.2	3	SN		C		16	.0	
YUNN	15	0329E	0333	0357	S14	E53	.831		19.1	28	SN		P		48	.9	E
YUNN	15	0416	0417	0431	S22	W09	.489		15.9	15	SN		C		32	.4	
PURP	15	0443E	0444	0447D	S22	W14	.516		16.2	4D	1B		V	0444	269	3.2	
MANI	15	0444E	0446	0453D	S21	W17	.525		16.5	9D	SB	1	V		150	1.8	
YUNN	15	0449E		0500	S21	W15	.510		16.3	11	2N		P		482	5.8	E
MANI	15	0600E	0602	0604D	S21	W19	.541		16.7	4D	SB	1	V		80	1.0	
ISTA	15	0720		0823	S19	W02	.422		15.5	63	SF				0	.0	EF
PEKG	15	0736	0738	0820	S19	W03	.424		15.5	44	SN		P	0738	181	2.0	F
MANI	15	0744E	0746U	0748D	S19	W00	.421		15.3	4D	SN	1	V		120	1.4	F
YUNN	15	0900E	0900	0905	S19	W15	.484		16.5	5	SN		P		80	.9	E
BIGB	15	1847	1856	1915	S08	E88	1.000		22.4	28	1N	3	C	1856	70	.0	
BIGB	15	2018	2019	2050	S22	W18	.545		17.2	32	SB	2	C	2019	100	1.1	
BIGB	15	2038	2041	2100	S25	W27	.650		17.9	22	SB	2	C	2041	130	1.5	
BIGB	15	2241	2245	2312	S20	W07	.451		16.5	31	SB	2	C	2245	90	.9	
BIGB	15	2303	2304	2348	S07	E40	.668		19.0	45	SB	2	C	2304	100	1.3	
MANI	15	2304E	2304U	2316	S07	E37	.631		18.7	12	SB	1	V		100	1.3	F
MITK	15	2308E		2317D	S06	E37	.627		18.7	9D	SN		P	2308	0	.0	E
PEKG	16	0036E	0037	0048	S18	W09	.429		16.7	12	SN		P	0037	92	1.1	E
PEKG	16	0036E	0037	0037D	S11	E43	.719		19.2	1D	SN		P	0037	101	1.7	E
YUNN	16	0245	0248	0253	N14	W14	.410		17.2	8	SF		C		96	1.0	
PEKG	16	0305E	0316	0327	S12	E43	.723		19.4	22	1B		C	0316	168	2.5	F
MANI	16	0314E	0315	0326D	S14	E45	.753		19.5	12D	SN	1	V		60	.9	F
PEKG	16	0315	0316	0322	N13	W15	.407		17.3	7	SN		C	0316	42	.4	D
YUNN	16	0322E	0323	0345	S10	E40	.680		19.1	23	SN		P		113	1.6	E
YUNN	16	0324	0326	0328	S16	W20	.492		17.6	4	SN		P		32	.4	
PEKG	16	0324	0325	0330	S17	W21	.513		17.7	6	SF		C	0325	42	.5	D
PEKG	16	0349	0351	0400	S17	W21	.513		17.7	11	SN		C	0351	105	1.2	E
PEKG	16	0403	0405	0410	S09	E68	.936		21.3	7	SN		P	0405	55	.0	E
ISTA	16	0630	0700	0725	S09	E40	.676		19.3	55	1N				0	.0	E
ISTA	16	0633	0640	0650	N16	W17	.462		17.5	17	SN				0	.0	U
MANI	16	0636E	0639U	0643D	S10	E36	.632		19.0	7D	SB	1	V		140	1.9	F
YUNN	16	0641E		0643	N14	W18	.449		17.6	2	SN		P		80	.9	E
YUNN	16	0641E		0643	S09	E36	.627		19.0	2	1N		P		241	3.2	EF
ISTA	16	0658		0705	S19	W28	.603		18.4	7	SN				0	.0	E
MANI	16	0703E	0704U	0707D	S09	E36	.627		19.0	4D	SN	1	V		40	.5	
YUNN	16	0730E	0734	0746	S10	E40	.680		19.3	16	SF		P		64	.9	E
YUNN	16	0905E		0910	S10	E38	.656		19.2	5	1N		P		177	2.3	E
YUNN	16	0905E	0906	0910	N17	W17	.475		17.7	5	SN		P		48	.5	D
ATHN	16	1223	1225	1327	S16	W23	.523		18.2	64	SB	3	C		254	.0	
RAMY	16	1229	1230	1259	S19	W27	.593		18.5	30	1B	3	C		330	.0	
RAMY	16	1244	1248	1323	S19	W36	.686		19.2	39	2B	3	C		617	.0	
HOLL	16	1520	1525	1535	S06	E60	.875		21.1	15	SF	3	C		33	.0	
HOLL	16	1619	1622	1625	S17	W27	.575		18.7	6	SF	3	C		38	.0	
HOLL	16	1639	1647	1731	S09	E34	.602		19.2	52	SF	3	C		113	..0	

Hα SOLAR FLARES

OCTOBER 1981

OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMR. DAY			COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	16	1719	1721	1752	S18	W35	.668		19.3	33	SB	3	C		63	.0	
BIGB	16	1719	1721	1758	S18	W35	.668		19.3	39	SB	2	C	1721	70	.9	
HOLL	16	1756	1757	1805	S13	E31	.589		19.1	9	SF	3	C		30	.0	
HOLL	16	1842	1845	1930	S08	E30	.544		19.0	48	SF	3	C		25	.0	
HOLL	16	1847	1851	1857	S19	W38	.706		19.6	10	SB	3	C		81	.0	
BIGB	16	1848	1851	1858	S20	W38	.712		19.6	10	SB	2	C	1851	70	.9	
HOLL	16	1918	1929	1932	S19	W20	.525		18.3	14	SF	3	C		39	.0	
HOLL	16	1944	1952	2020	S19	W19	.516		18.2	36	SF	3	C		56	.0	
HOLL	16	2034	2036	2049	S19	W37	.696		19.6	15	SF	3	C		27	.0	
HOLL	16	2035	2036	2119	S16	W34	.644		19.4	44	SF	3	C		50	.0	
HOLL	16	2037	2038	2135	S08	E27	.504		18.9	58	SB	3	C		162	.0	
BIGB	16	2037	2038	2136	S08	E27	.504		18.9	59	SB	2	C	2038	100	1.2	
HOLL	16	2212	2233	2338D	S09	E52	.808		20.8	86D	1B	3	C		324	.0	
BIGB	16	2225	2238	2336	S06	E55	.831		21.1	71	1B	2	C	2238	190	3.4	
LEAR	16	2310E	2315	2319	N20	W77	.984		22.7	9	SN	3	C		87	.0	
LEAR	16	2356	2356	0005	S12	E24	.497		18.8	9	SF	3	C		51	.0	
LEAR	17	0101	0101	0120	S10	E29	.565		19.2	19	SN	3	C		29	.0	
LEAR	17	0211	0213	0226	S20	W22	.588		18.7	15	SF	3	C		47	.0	
LEAR	17	0255	0304	0330	S20	W41	.761		20.2	35	SN	3	C		54	.0	
LEAR	17	0255	0304	0322	S16	W37	.697		19.9	27	SN	3	C		86	.0	
LEAR	17	0336	0339	0350	S08	E23	.475		18.9	14	SN	3	C		121	.0	
PEKG	17	0439E	0439	0448	S08	E20	.439		18.7	9	SN		P	0439	76	.8	E
PEKG	17	0439E	0439	0445	S19	W43	.773		20.4	6	SN		P	0439	42	.6	E
PEKG	17	0522	0525	0532	S10	E22	.482		18.9	10	SN		P	0525	126	1.5	F
PEKG	17	0525E	0525	0529	S24	W37	.752		20.0	4	SN		P	0525	38	.6	D
LEAR	17	0736	0739	0754	S16	W47	.795		20.8	18	1N	3	C		231	.0	
LEAR	17	0736	0738	0812	S07	E20	.429		18.8	36	SN	3	C		99	.0	
PEKG	17	0737E	0737	0748	S16	W45	.777		20.7	11	SN		P	0737	63	1.0	E
PEKG	17	0737E	0737	0745	S07	E20	.429		18.8	8	SN		P	0737	76	.8	E
LEAR	17	0805	0805	0836	S18	W38	.720		20.2	31	SF	3	C		37	.0	
LEAR	17	0853	0854	0907	N20	W83	.998		23.6	14	1N	3	C		0	.0	
HOLL	17	1443	1452	1521	S03	E43	.700		20.8	38	SN	3	C		103	.0	
HOLL	17	1510	1511	1521	S15	W43	.752		20.9	11	SN	3	C		40	.0	
HOLL	17	1547	1556	1556	N20	W36	.715		20.4	9	SF	3	C		24	.0	
HOLL	17	1552	1603	1650	S13	W60	.894		22.2	58	SN	3	C		40	.0	
HOLL	17	1611	1616	1703	S07	E18	.405		19.0	52	1B	3	C		312	.0	
RAMY	17	1612E		1620D	S00	E00	.152		17.7	8D	1B	3	C		0	.0	
BIGB	17	1612	1615	1706	S07	E18	.405		19.0	54	SB	3	C	1615	120	1.3	
HOLL	17	1625E	1631	1640	N23	W82	.998		23.8	15	2B	3	C		0	.0	
HOLL	17	1719	1720	1740	S13	W43	.742		20.9	21	SN	3	C		52	.0	
HOLL	17	1741	1748	1902	S16	W42	.748		20.9	81	1B	3	C		223	.0	
BIGB	17	1743	1747	1821	S14	W44	.757		21.0	38	SB	3	C	1747	140	2.0	
HOLL	17	1818	1834	1905	S11	E20	.470		19.3	47	2B	3	C		527	.0	
BIGB	17	1831	1833	1903	S11	E20	.470		19.3	32	SB	3	C	1833	210	2.3	
HOLL	17	1916	1916	1932	S20	W33	.687		20.3	16	SF	3	C		20	.0	
HOLL	17	1921	1928	1946	S12	E10	.391		18.6	25	SN	3	C		72	.0	
HOLL	17	1923	1927	1933	S16	W38	.707		20.7	10	SF	3	C		34	.0	
HOLL	17	1927E	1928U	2004	S10	E26	.529		19.8	37	SF	3	C		72	.0	
HOLL	17	1934E	1938	1948	S07	E33	.594		20.3	14	SF	3	C		42	.0	
HOLL	17	1934	1944	2004	S16	W45	.777		21.2	30	SN	3	C		58	.0	
HOLL	17	1936	1944	1956	S19	W32	.669		20.2	20	SN	3	C		42	.0	
HOLL	17	1944	1948	1959	S16	W67	.944		22.8	15	SN	3	C		15	.0	
HOLL	17	2000	2007	2015	S14	W65	.930		22.7	15	SF	3	C		13	.0	
BIGB	17	2052	2059	2127	S16	E14	.475		18.9	35	SN	3	C	2059	70	.7	
HOLL	17	2101E	2101U	2116D	S14	E13	.441		18.9	15D	SF	3	C		35	.0	
HOLL	17	2307	2314	2358D	S16	W47	.795		21.5	51D	SN	3	C		73	.0	
HOLL	17	2314	2315	2329	S19	W35	.698		20.6	15	SN	3	C		50	.0	
HOLL	17	2331	2331	2341	S11	E17	.438		19.3	10	SN	3	C		26	.0	
HOLL	17	2334	2335	2358D	S08	E41	.697		21.1	24D	SN	3	C		50	.0	
BIGB	17	2335	2339	2345D	S09	E42	.712		21.1	10D	SN	3	P	2339	110	1.5	
HOLL	17	2343	2345	2354	S19	W36	.708		20.7	11	SN	3	C		30	.0	
MITK	17	2355	2356	2418	S07	E42	.704		21.1	23	1N		C	2356	190	2.7	E
LEAR	17	2356	2356	0005	S12	E24	.524		19.8	9	SF	3	C		51	.0	
MITK	18	0021	0023	0041D	S12	E18	.425		19.4	20D	SN		C	0023	0	.0	E
MITK	18	0205E	0209	0234D	S17	W40	.714		21.1	29D	1N		C	0209	180	2.6	E
MANI	18	0215E	0215U	0218D	S18	W42	.740		21.2	3D	SF	1	V		30	.5	F
MITK	18	0234	0236	0248D	S15	E09	.383		18.8	14D	1N		C	0236	190	2.1	E
PEKG	18	0235E	0237	0304	S16	E09	.397		18.8	29	SN		P	0237	38	.4	E
PEKG	18	0417E	0417	0418	S09	E40	.675		21.2	1	SF		P	0417	55	.5	D
PEKG	18	0455E	0457	0500	S19	W37	.695		21.0	5	SN		P	0457	126	1.8	E

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	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
YUNN	18	0528E	0530	0541	S11	E15	.381		19.4	13	SN		P		64	.7	
YUNN	18	0551	0552	0603	S14	E07	.356		18.8	12	SN		C		16	.2	D
LEAR	18	0659	0701	0802	S06	E04	.213		18.6	63	SF	3	C		66	.0	
LEAR	18	0703	0706	0731	S16	W56	.862		22.5	28	SF	3	C		46	.0	
MANI	18	0748E	0748U	0755D	S19	W37	.695		21.1	7D	SF	1	V		20	.3	
ATHN	18	0753	0757	0823	S39	W19	.743		19.8	30	SB	2	C		80	.0	
MANI	18	0757E	0758	0810D	S19	W38	.705		21.2	13D	SF	1	V		50	.7	F
WEND	18	0806E	0810	0830	S19	W38	.705		21.2	24	SF		C	0810	56	.8	
WEND	18	0838	0844	0851	S10	E14	.358		19.4	13	SF		C	0844	38	.5	
LEAR	18	0851	0853	0937	S09	E07	.280		18.9	46	SF	3	C		97	.0	
WEND	18	0853	0914	0929	S10	E07	.295		18.9	36	SF		C	0914	119	1.2	
WEND	18	0914	0922	0939	S04	W35	.592		21.0	25	SF		C	0922	44	.6	
WEND	18	0917	0918	0922	S12	E01	.304		18.5	5	SF		C	0918	50	.5	
ATHN	18	1106E	1112	1115D	S18	W51	.825		22.3	9D	1B	1	C		254	.0	
WEND	18	1121E		1138D	S17	W54	.848		22.5	17D	2B		C	1138	525	9.6	
ATHN	18	1224	1228	1231D	S08	E36	.621		21.2	7D	SB	1	C		111	.0	D
WEND	18	1230E	1244	1257	S19	W41	.735		21.6	27	SF		C	1244	56	.8	
WEND	18	1230E	1238	1259	S08	E33	.583		21.0	29	SF		C	1238	75	.9	
WEND	18	1232E		1358D	S15	W56	.859		22.7	86D	1F		C	1232	250	4.7	E
HOLL	18	1504E	1507U	1517D	S13	W02	.322		18.8	13D	SN	3	C		89	.0	
BIGB	18	1506E	1509	1516	S13	W02	.322		18.8	10	SB	3	P	1509	100	1.0	
HOLL	18	1533	1539	1826	S17	W59	.887		23.1	173	SN	3	C		91	.0	
HOLL	18	1536	1539	1555	S19	W45	.774		22.0	19	SN	2	C		27	.0	
HOLL	18	1546	1608	1813	S04	E28	.494		20.8	147	1N	3	C		318	.0	
BIGB	18	1602	1607	1748	S03	E28	.489		20.8	106	SB	3	C	1607	120	1.4	
HOLL	18	1653	1655	1703	S18	W43	.750		21.9	10	SN	3	C		16	.0	
HOLL	18	1720	1730	1803	S13	E03	.324		18.9	43	SB	3	C		150	.0	
BIGB	18	1728	1732	1746	S13	E03	.324		19.0	18	SB	3	C	1732	90	.9	
PALE	18	1730	1730	1733	S13	E03	.324		19.0	3	SF	3	C		32	.0	
HOLL	18	1735	1735	1741	S19	W45	.774		22.1	6	SF	3	C		28	.0	
HOLL	18	1749	1754	1803	S18	W43	.750		22.0	14	SF	3	C		33	.0	
HOLL	18	1812	1852	2006D	S11	E07	.310		19.3	114D	1N	2	C		255	.0	
HOLL	18	1814	1814	1903	S04	E27	.479		20.8	49	SF	3	C		186	.0	
BIGB	18	1838	1854	2007	S11	E07	.310		19.3	89	SN	3	C	1854	100	1.0	
BIGB	18	2001	2007	2037	S09	E29	.536		21.0	36	SN	3	C	2007	80	.9	
BIGB	18	2210	2212	2242	S05	W41	.673		22.0	32	SN	3	C	2212	80	1.1	
MITK	19	0033	0038	0047	S15	W58	.875		23.4	14	1N		C	0038	130	3.1	E
PURP	19	0035	0037	0038D	S15	W61	.898		23.6	3D	SN		C	0037	55	.0	E
LEAR	19	0035	0037	0051	S15	W60	.890		23.5	16	SN	3	C		55	.0	
LEAR	19	0038	0040	0049	S20	W48	.806		22.6	11	SF	3	C		50	.0	
LEAR	19	0056	0058	0115	S19	W48	.801		22.6	19	SN	3	C		61	.0	
LEAR	19	0155	0155	0204	S13	W02	.320		19.2	9	SF	3	C		39	.0	
MITK	19	0155	0156	0204	S13	W04	.326		19.4	9	SN		C	0156	0	.0	E
MITK	19	0232	0233	0302	S16	W55	.853		23.2	30	1B		C	0233	180	3.5	E
PALE	19	0241E	0301	0306	S20	W50	.823		22.9	25	SF	3	C		101	.0	D
MITK	19	0258	0300	0312	S19	W50	.819		22.9	14	1N		C	0300	170	3.1	
MITK	19	0307	0318	0415	S07	E27	.496		21.2	68	2B		C	0318	450	5.4	FU
LEAR	19	0319	0323	0425	S08	E27	.502		21.2	66	2B	3	C		562	.0	
LEAR	19	0428	0439	0524	S20	W51	.832		23.0	56	SN	3	C		99	.0	
MITK	19	0429	0435	0457	S19	W52	.837		23.1	28	1N		C	0435	130	2.5	
LEAR	19	0439	0442	0519	S09	W04	.261		19.5	40	SF	3	C		45	.0	
LEAR	19	0606	0608	0639	S10	W04	.277		19.6	33	SF	3	C		134	.0	
LEAR	19	0656	0656	0743	S09	W03	.257		19.5	47	SN	3	C		62	.0	
YUNN	19	0722E		0724	S11	W02	.287		19.5	2	SN		P		32	.4	D
LEAR	19	0736	0738	0746	S20	W59	.894		23.7	10	SF	3	C		30	.0	
LEAR	19	0932	0933	0942	S19	W69	.952		24.6	10	SF	3	C		37	.0	
ATHN	19	1024	1028	1059	S09	E22	.444		21.1	35	SB	2	C		127	.0	D
ATHN	19	1318	1321	1332	N20	E20	.534		21.1	14	SN	2	C		95	.0	
BIGB	19	1918	1919	1940	S15	W14	.420		20.9	22	SN	3	C	1919	110	1.2	
HOLL	19	2145	2151	2246	N18	E16	.475		21.1	61	SF	3	C		36	.0	
HOLL	19	2230	2231	2247	S22	W79	.990		25.9	17	SF	3	C		0	.0	
HOLL	19	2323	2327	2347D	S13	W14	.394		21.0	24D	SN	3	C		69	.0	
LEAR	19	2327	2327	2330	S13	W14	.394		21.0	3	SF	3	C		22	.0	
LEAR	20	0122	0125	0139	S14	W18	.445		21.4	17	SN	3	C		147	.0	
LEAR	20	0148	0151	0230D	S07	W18	.373		21.4	42D	SN	3	C		115	.0	
YUNN	20	0148	0152	0202	S05	W20	.384		21.6	14	SN		C		64	.7	E
YUNN	20	0236E	0240	0244	N19	E13	.464		21.1	8	SN		P		64	.7	E
MITK	20	0314	0319	0345D	S11	E10	.330		20.9	31D	1N		C	0319	290	3.2	E
YUNN	20	0316	0323	0402	S10	E10	.316		20.9	46	SB		C		161	1.8	F
LEAR	20	0455	0459	0520	S14	W21	.478		21.8	25	SF	3	C		77	.0	

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	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
LEAR	20	0658	0659	0712	N18	W67	.940		25.3	14	SF	3	C		40	.0	
LEAR	20	0714	0733	0743	S08	E04	.243		20.6	29	SF	3	C		116	.0	
LEAR	20	0734	0738	0742	N18	W68	.946		25.4	8	SF	3	C		29	.0	
ATHN	20	0734	0737	0753	N18	W73	.969		25.8	19	SB	2	C		80	.0	D
WEND	20	0807	0809	0821	N16	W76	.979		26.0	14	SF		C	0809	37	.0	
WEND	20	0820	0826	0830	S14	W25	.523		22.2	10	SF		C	0826	63	.7	
WEND	20	1133	1137	1152	S14	W27	.547		22.5	19	SF		C	1137	50	.6	
WEND	20	1204	1208	1218	S14	W27	.547		22.5	14	SF		C	1208	44	.5	
WEND	20	1241	1243	1250	S13	W21	.468		22.1	9	SF		C	1243	56	.6	
WEND	20	1343	1351	1400	S04	W25	.450		22.4	17	SF		C	1351	31	.4	
WEND	20	1347	1351	1408	S20	W80	.992		26.6	21	SF		C	1351	56	.0	A
HOLL	20	1439	1449	1527	S14	W27	.547		22.6	48	1B	3	C		343	.0	
WEND	20	1447	1451	1504	S13	W28	.551		22.7	17	1N		C	1451	175	2.1	
WEND	20	1510	1528	1533D	S11	E04	.292		20.9	23D	1F		C	1528	181	2.2	
BIGB	20	1510E	1512	1621	S11	E06	.301		21.1	71	SN	3	C	1512	70	.7	
HOLL	20	1534	1536	1545	S12	W27	.531		22.7	11	SF	3	C		25	.0	
HOLL	20	2115	2125	2200	S11	W01	.285		21.0	45	SN	3	C		175	.0	
HOLL	20	2131	2138	2208	S13	W28	.551		23.0	37	SF	3	C		41	.0	
HOLL	20	2302	2322	2344	S14	W29	.570		23.1	42	SB	3	C		98	.0	
LEAR	20	2306	2328	2347	S13	W28	.551		23.1	41	SN	3	C		165	.0	
LEAR	21	0003	0025	0140	S05	W01	.182		21.1	97	1N	3	C		274	.0	
LEAR	21	0011	0011	0040	S14	W28	.558		23.1	29	SF	3	C		29	.0	
YUNN	21	0046E	0049	0106	S03	W02	.150		21.2	20	1N		P		241	2.5	
LEAR	21	0418	0419	0425	S14	W31	.593		23.5	7	SF	3	C		26	.0	
LEAR	21	0432	0433	0449	S14	W35	.640		23.8	17	SN	3	C		84	.0	
YUNN	21	0434	0439	0446	S14	W36	.652		23.9	12	SN		C		64	.9	T
PEKG	21	0435E	0441	0448	S13	W35	.634		23.8	13	SN		P	0441	84	1.1	E
PURP	21	0438	0439	0442	S11	W34	.610		23.7	4	SN		C	0439	62	.8	E
LEAR	21	0539	0549	0558	S14	W32	.605		23.6	19	SN	3	C		127	.0	
YUNN	21	0544	0550	0634	S15	W33	.623		23.7	50	SN		C		48	.6	ET
YUNN	21	0544	0620	0634	S14	W33	.617		23.7	50	1N		C		321	4.2	ETK
LEAR	21	0614	0621	0623D	S14	W32	.605		23.7	9D	SB	3	C		160	.0	
PEKG	21	0630E	0631	0640	S14	W32	.605		23.7	10	SN		P	0631	84	1.1	E
YUNN	21	0638	0642	0650	S13	W33	.610		23.8	12	SN		C		96	1.2	ET
YUNN	21	0700	0702	0716	S14	W33	.617		23.8	16	1N		C		321	4.2	T
YUNN	21	0738	0743	0756	S13	W37	.658		24.1	18	1N		C		161	2.2	T
PEKG	21	0738	0742	0752D	S13	W37	.658		24.1	14D	SN		P	0742	93	1.2	E
LEAR	21	0738	0742	0742D	S13	W36	.646		24.0	4D	SN	3	C		167	.0	
PEKG	21	0742	0745	0757	S21	W42	.754		24.5	15	SN		P	0745	46	.7	D
YUNN	21	0753	0756	0800	S11	W31	.573		23.7	7	SN		C		32	.4	T
LEAR	21	0818	0824	0830	S14	W35	.640		24.0	12	SF	3	C		89	.0	
YUNN	21	0840E	0844	0852	S15	W35	.646		24.0	12	SN		P		113	1.5	T
RAMY	21	1253	1310	1544	S12	W35	.628		24.2	171	SN	3	C		167	.0	
BIGB	21	1606	1609	1638	S16	W40	.707		24.7	32	SN	3	C	1609	110	1.5	
BIGB	21	1616	1621	1716	S16	W32	.619		24.1	60	SN	3	C	1621	90	.9	
BIGB	21	1715	1725	1752	S15	W43	.734		24.9	37	1B	3	C	1725	200	2.8	
BIGB	21	1849	1857	1926	S05	W13	.286		22.8	37	SB	3	C	1857	90	1.0	
RAMY	21	1854	1855	1908D	S03	W13	.267		22.8	14D	SB	3	C		120	.0	
BIGB	21	2104	2107	2114	S15	W47	.775		25.4	10	SN	3	C	2107	170	2.6	
BIGB	21	2306	2312	2338	S08	W37	.633		24.7	32	1B	3	C	2312	230	3.0	
LEAR	21	2307	2312U	2336	S08	W37	.633		24.7	29	1B	3	C		340	.0	
PEKG	22	0643E	0643	0650D	S12	W46	.754		25.7	7D	SF		P	0643	126	2.0	E
YUNN	22	0649E		0704	S13	W46	.757		25.7	15	1B		P		161	2.6	E
RAMY	22	1403	1405	1417	S10	W25	.489		24.5	14	SN	3	C		60	.0	
RAMY	22	1428	1437	1459	S27	E41	.779		25.7	31	SF	3	C		39	.0	
HOLL	22	1502E	1502	1531	S10	W48	.768		26.2	29	SN	3	C		125	.0	
HOLL	22	1552	1558	1601	S10	W51	.799		26.5	9	SF	3	C		24	.0	
RAMY	22	1630	1631	1706	S05	W27	.483		24.7	36	SN	3	C		56	.0	
HOLL	22	1631	1632	1708D	S03	W30	.517		24.9	37D	SF	3	C		33	.0	
HOLL	22	1718	1734	1754	S10	W50	.789		26.5	36	SN	3	C		95	.0	
BIGB	22	1732	1734	1753	S10	W50	.789		26.5	21	SN	3	C	1734	70	1.1	
BIGB	22	1928	1933	1956	S14	W50	.801		26.6	28	SF	3	C	1933	70	1.1	
HOLL	22	1928	1928	1950	S14	W50	.801		26.6	22	SN	3	C		55	.0	
PALE	22	1932	1932	1940	S14	W49	.791		26.5	8	SF	3	C		20	.0	
HOLL	22	2028	2028	2052	S14	W50	.801		26.6	24	SN	3	C		66	.0	
BIGB	22	2028	2028	2059	S14	W50	.801		26.6	31	SN	3	C	2028	90	1.4	
HOLL	22	2146	2153	2201	N09	W52	.807		26.8	15	SF	3	C		20	.0	
BIGB	22	2224	2305	2339	S17	E58	.879		27.3	75	1B	3	C	2305	200	3.9	
HOLL	22	2250E	2253	2339D	S16	E57	.869		27.2	49D	1B	3	C		250	.0	
PALE	22	2306E	2308U	2318D	S16	E57	.869		27.2	12D	SB	2	C		16	.0	

Hα SOLAR FLARES

OCTOBER 1981

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
PEKG	23	0031E	0032	0034	S15	W58	.874		27.4	3	SF		P	0032	25	.5	D
PURP	23	0105	0107	0115	N09	W52	.807		26.9	10	1N		C	0107	193	3.3	
PEKG	23	0107E	0107	0114	N11	W51	.802		26.9	7	SN		P	0107	29	.5	E
PEKG	23	0116E	0118	0130	S05	W28	.497		25.2	14	SF		C	0118	84	1.0	E
PEKG	23	0239	0242	0250	S13	W54	.835		27.2	11	SN		C	0242	67	1.2	F
WEND	23	1219E		1253	S12	E52	.814		27.4	34	1N		C	1219	144	2.4	
WEND	23	1235	1236	1255D	S11	W58	.866		27.9	20D	SN		C	1236	41	.8	
BIGB	23	2007	2013	2028	N08	W61	.885		28.4	21	1F	3	C	2013	100	2.1	
HOLL	23	2211	2214	2227	N20	W41	.738		27.0	16	SF	3	C		23	.0	
PEKG	24	0259E	0259	0308	N21	W47	.799		27.6	9	SF		C	0259	29	.4	E
PURP	24	0302	0312	0323	S31	E38	.780		27.0	21	1N		C	0312	131	2.3	E
YUNN	24	0546D	0548	0554	S10	W48	.768		27.8	8	1F		P		129	2.1	E
LEAR	24	0546	0548	0603	S09	W46	.743		27.7	17	1N	3	C		172	.0	
YUNN	24	0755	0757	0803	N21	W50	.825		28.1	8	SN		C		64	1.0	E
PEKG	24	0825	0830	0835	N21	W48	.807		28.0	10	SN		P	0830	42	.5	D
YUNN	24	0827	0828	0835	N20	W49	.812		28.0	8	SN		C		48	.8	E
RAMY	24	1255	1338	1559	N19	W50	.817		28.3	184	SN	3	C		81	.0	
RAMY	24	1441	1448	1524	S18	W42	.737		27.8	43	SN	3	C		59	.0	
HOLL	24	1444	1447	1515	S09	W43	.709		27.8	31	SF	3	C		40	.0	
HOLL	24	1642	1644	1655	S12	W77	.980		30.5	13	SF	3	C		27	.0	
HOLL	24	1848	1848	1856	N20	W54	.855		28.8	8	SF	3	C		20	.0	
HOLL	24	2106	2106	2118	N20	W55	.863		29.0	12	SF	3	C		17	.0	
LEAR	24	2333	2353	0145	S11	W55	.839		29.1	132	1B	3	C		250	.0	
PEKG	25	0014E	0015	0045	S09	W56	.844		29.2	31	SB		P	0015	92	1.8	E
PEKG	25	0015E	0015	0020	S05	W16	.324		26.2	5	SN		P	0015	25	.3	D
PEKG	25	0252E	0253	0258	S15	W95	1.006		1.2	6	SN		C	0253	8	.0	AD
LEAR	25	0325	0326	0334	S06	W17	.346		26.4	9	SF	3	C		32	.0	
PEKG	25	0345E	0345	0349	S06	W19	.374		26.6	4	SF		C	0345	29	.3	D
YUNN	25	0728	0730	0744	S24	E07	.498		25.8	16	SF		C		16	.2	
WEND	25	0851	0855	0906D	S05	W60	.873		29.9	15D	SF		C	0855	25	.5	
RAMY	25	1314	1320	1411	S25	W01	.501		25.6	57	SF	3	C		149	.0	
HOLL	25	1703	1713	1720	S06	W25	.459		27.6	17	SF	3	C		19	.0	
HOLL	25	1707	1712	1734	N17	W65	.926		30.6	27	SN	3	C		38	.0	
BIGB	25	1709	1712	1727	N17	W65	.926		30.6	18	SN	3	C	1712	60	.0	
HOLL	26	1726	1738	1754	N16	E08	.381		27.3	28	SN	3	C		118	.0	
PALE	26	1735E	1740U	1748D	N16	E07	.376		27.3	13D	SF	2	C		30	.0	D
BIGB	26	1736	1737	1753	N16	E06	.371		27.2	17	SN	3	C	1737	90	.9	
LEAR	27	0328	0331	0341	S06	W43	.698		30.4	13	SF	3	C		69	.0	
YUNN	27	0329	0332	0335	S06	W44	.710		30.4	6	SN		C		48	.7	E
LEAR	27	0406	0406	0413	S23	W21	.568		28.7	7	SF	3	C		35	.0	
PURP	27	0448	0453	0502	N08	E53	.813		31.2	14	SN		C	0454	76	1.2	G
LEAR	27	0451E	0456U	0503	N06	E50	.778		31.0	12	SF	3	C		40	.0	
LEAR	27	0453	0455	0503	N18	E88	1.000		2.8	10	SF	3	C		0	.0	
LEAR	27	0453	0456	0503	N05	E59	.864		31.6	10	SF	3	C		21	.0	
RAMY	27	1340	1348	1402	S05	W49	.765		31.2	22	SN	3	C		38	.0	
RAMY	27	1409	1431	1440	S05	W47	.743		31.1	31	SN	3	C		119	.0	
RAMY	27	1443	1446	1501	S05	W48	.754		31.2	18	SN	3	C		124	.0	
RAMY	27	1515	1555	1612	S05	W50	.776		31.4	57	SF	3	C		96	.0	
HOLL	27	1516	1634	1641D	S05	W48	.754		31.2	85D	SB	3	C		136	.0	
HOLL	27	1547	1547	1557	N13	W09	.342		28.3	10	SF	3	C		30	.0	
RAMY	27	1621	1632	1635D	S05	W48	.754		31.3	14D	SB	3	C		110	.0	
HOLL	27	1734	1840	1935	S05	W51	.787		31.6	121	SB	3	C		150	.0	
PALE	27	1832	1837	1859	S06	W49	.767		31.4	27	SF	3	C		54	.0	
HOLL	27	1929	1931	1935	N20	E78	.986		2.7	6	SF	3	C		0	.0	
LEAR	28	0029	0030	0036	N14	E80	.989		3.0	7	SF	3	C		0	.0	
PEKG	28	0257E	0257	0315	S06	W59	.865		1.5	18	SF		P	0257	42	.8	D
MITK	28	0353	0409	0447D	S07	W54	.821		1.2	54D	1N		C	0409	240	4.2	E
PEKG	28	0359	0408	0437D	S04	W55	.826		1.3	38D	1N		P	0408	181	3.3	FZ
PEKG	28	0608E	0608U	0611	N17	E69	.948		2.4	3	SF		P	0608	25	.0	E
ISTA	28	0640		0732	S05	W56	.837		1.5	52	SF				0	.0	E
PEKG	28	0647E	0652	0717D	S03	W56	.834		1.5	30D	SN		C	0652	97	1.8	E
MITK	28	0647E		0701D	S04	W55	.826		1.4	14D	1N		C	0647	200	3.7	
WEND	29	0856	0906	0923	S20	E58	.884		2.7	27	SF		C	0906	31	.6	
LEAR	29	0903E	0905	0911D	S20	E58	.884		2.7	8D	SF	3	C		69	.0	
RAMY	29	1336	1340	1342	N06	E27	.485		31.6	6	SB	3	C		69	.0	
HOLL	29	2005	2006	2014	S07	W83	.994		5.1	9	SN	3	C		0	.0	

Hα SOLAR FLARES

OCTOBER 1981

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. LON. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
HOLL	29	2016	2016	2026	N30	E57	.903		3.1	10	SF	3	C		15	.0	
BIGB	29	2203	2208	2238	N19	E44	.759		2.2	35	SN	3	C	2208	90	1.3	
HOLL	29	2206	2209	2239	N19	E44	.759		2.2	33	SF	3	C		52	.0	
HOLL	29	2325	2334	2339	N16	E52	.824		2.9	14	SF	3	C		48	.0	
HOLL	29	2342	2357	2357D	N16	E52	.824		2.9	15D	SF	2	C		75	.0	
BIGB	29	2343	2357	0010	N16	E52	.824		2.9	27	SF	3	C	2357	100	1.7	
LEAR	29	2355	0008	0006	N16	E49	.796		2.7	11	SF	3	C		27	.0	
PEKG	30	0354E	0357	0415	N15	E48	.782		2.8	21	SN		P	0357	50	.8	E
PURP	30	0356	0357	0359	N15	E47	.772		2.7	3	SN		C	0357	41	.0	E
YUNN	30	0356	0359	0404	N17	E48	.789		2.8	8	SN		C		48	.8	
YUNN	30	0827	0832	0840	N16	E45	.755		2.7	13	SF		C		32	.5	D
HOLL	30	1441	1528	1552	N29	E45	.816		3.0	71	SF	3	C		34	.0	
HOLL	30	1449	1516	1555	N18	E41	.723		2.7	66	SF	3	C		48	.0	
HOLL	30	1514	1514	1530	N12	W03	.290		30.9	16	SF	3	C		35	.0	
HOLL	30	1800	1807	1810	N17	E43	.739		3.0	10	SF	3	C		35	.0	
BIGB	30	1800	1807	1823	N18	E43	.744		3.0	23	SF	3	C	1807	80	1.1	
BIGB	30	1901	1904	1920	S10	E71	.952		5.1	19	SN	3	C	1904	60	.0	
HOLL	30	2049	2057	2110	N16	E42	.724		3.0	21	SF	3	C		37	.0	
BIGB	30	2143	2145	2206	N05	E08	.216		31.5	23	SN	3	C	2145	70	.7	
HOLL	30	2232	2234	2245	N19	E32	.634		2.3	13	SF	3	C		28	.0	
HOLL	30	2251	2254	2326	N16	E37	.669		2.7	35	SF	3	C		24	.0	
LEAR	31	0337	0340	0346	N13	E07	.323		31.7	9	SN	3	C		42	.0	
YUNN	31	0337	0339	0342	N14	E06	.333		31.6	5	SB		C		48	.5	D
PURP	31	0337	0339	0342	N07	E07	.233		31.7	5	SF		C	0339	83	.9	
YUNN	31	0354	0356	0400	N15	E39	.686		3.1	6	SF		C		16	.2	E
LEAR	31	0355	0356	0400	N14	E38	.669		3.0	5	SF	3	C		21	.0	
LEAR	31	0439	0608	0648	N14	E34	.622		2.7	129	2N	3	C		503	.0	
PEKG	31	0542E	0542	0625	N16	E35	.646		2.9	43	1N		P	0542	193	2.5	FK
PEKG	31	0547	0548	0600	N13	E05	.312		31.6	13	SN		C	0548	42	.4	E
LEAR	31	0549	0553	0600	N12	E06	.301		31.7	11	SF	3	C		30	.0	
PURP	31	0556	0610	0700	N15	E33	.617		2.7	64	1F		C	0610	166	2.1	
PEKG	31	0610E	0610	0610D	N16	E35	.646		2.9		1B		P	0610	315	4.0	F
YUNN	31	0643E	0645	0658	N18	E36	.670		3.0	15	SF		P		48	.6	
YUNN	31	0648D	0658	0702	S11	E57	.855		4.6	14	1B		P		145	3.1	
LEAR	31	0654	0722	0808	S12	E55	.840		4.4	74	1N	3	C		251	.0	
PURP	31	0656	0657	0720D	S11	E56	.847		4.5	24D	SB		C	0657	90	1.8	
LEAR	31	0709	0709	0714	N29	E36	.745		3.0	5	SF	3	C		46	.0	
ISTA	31	0715E		0743	S14	E54	.835		4.4	28	1N				0	.0	E
BUCA	31	0725E		0810	S14	E55	.844		4.4	45	SN		C	0740	107	2.0	D
YUNN	31	0729E	0731	0756	S13	E56	.851		4.5	27	1B		P		161	3.2	E
PEKG	31	0730E	0730E	0730D	S15	E55	.847		4.4		SN		P	0730	84	1.6	E
LEAR	31	0852	0857	0903	S12	E54	.831		4.4	11	SF	3	C		41	.0	
ATHN	31	1150E	1200U	1212D	N17	W12	.416		1.4	22D	SN	2	C		190	.0	
RAMY	31	1625	1637	1647	S13	E59	.876		5.1	22	SF	3	C		28	.0	
HOLL	31	1753	1802	1822	S23	E24	.590		2.5	29	SF	3	C		60	.0	
BIGB	31	1754	1802	1824	S23	E24	.590		2.5	30	SF	3	C	1802	80	.9	
RAMY	31	1756	1757	1811	S24	E23	.591		2.5	15	SN	3	C		31	.0	
HOLL	31	1839	1841	1847	N13	W03	.305		1.0	8	SF	3	C		34	.0	
HOLL	31	1906	1926	2035	S13	E48	.775		4.4	89	SN	3	C		87	.0	
BIGB	31	1907	1926	2033	S12	E48	.772		4.4	86	SN	3	C	1926	70	1.1	
PALE	31	1919	1925	2002D	S13	E48	.775		4.4	43D	SN	1	C		25	.0	
HOLL	31	2106	2109	2138	N18	E25	.550		2.8	32	SF	3	C		44	.0	
HOLL	31	2114	2117	2145	N10	W21	.430		2.5	31	SN	3	C		97	.0	
BIGB	31	2114	2117	2150	N10	W21	.430		2.5	36	SN	3	C	2117	80	.9	
BIGB	31	2139	2140	2151	S10	E49	.776		4.6	12	SN	3	C	2140	60	.9	
HOLL	31	2140	2141	2149	S10	E49	.776		4.6	9	SN	3	C		40	.0	
BIGB	31	2233	2235	2306	N11	W20	.426		2.4	33	SN	3	C	2235	70	.8	
BIGB	31	2347	2349	0008	S15	E48	.781		4.6	21	SN	3	C	2349	60	.9	

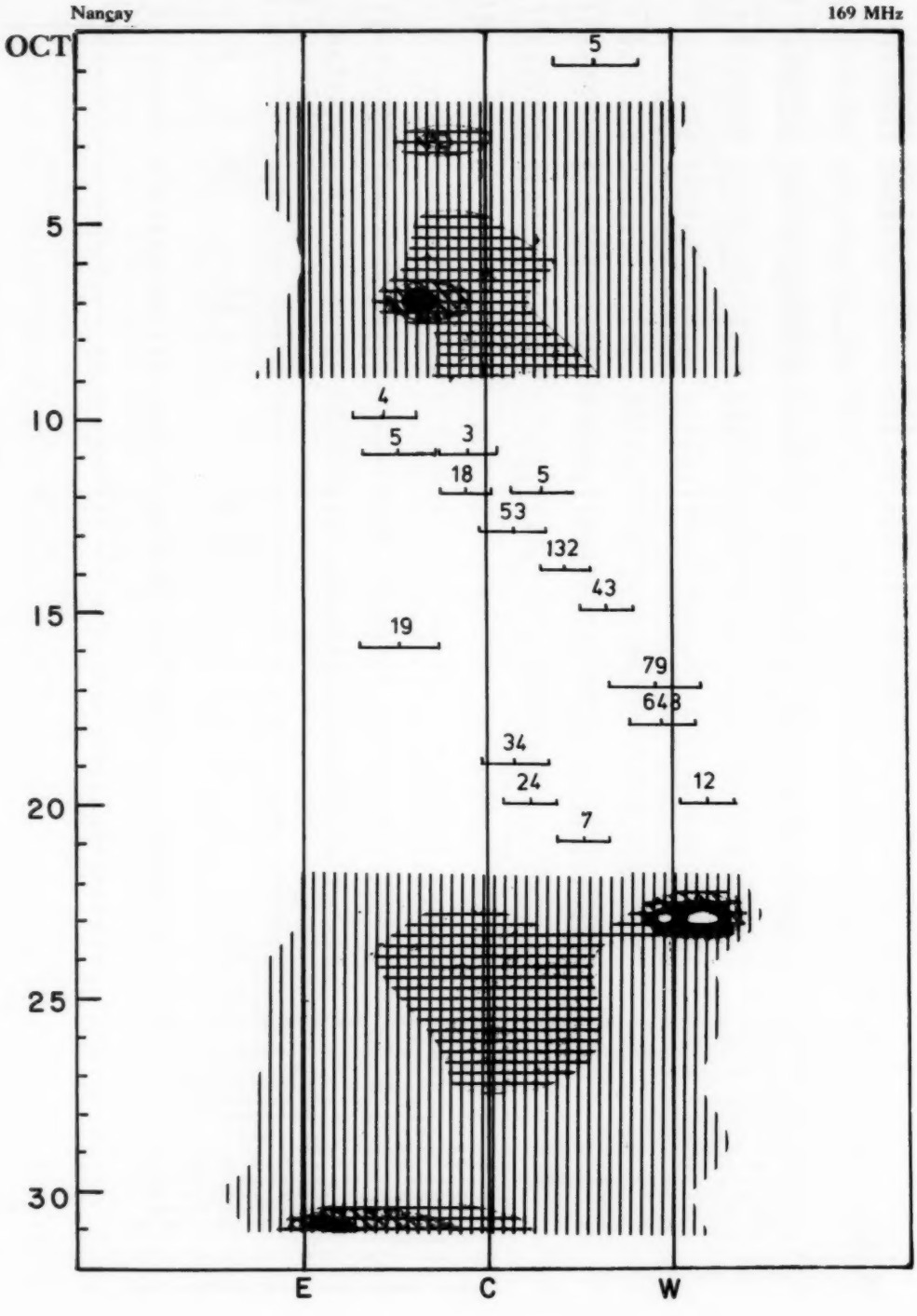
"REMARKS":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by high-speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the H and K lines of CaII.
P = Flare shows helium D3 in emission.
Q = Flare shows Balmer continuum in emission.
R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
S = Brightness follows disappearance of filament in same position.
T = Region active all day.
U = Two bright branches, parallel or converging.
V = Occurrence of an explosive phase: important, expansion within roughly 1 minute that often includes a significant intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide H-alpha line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

28
Oct 81

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

OCTOBER 1981



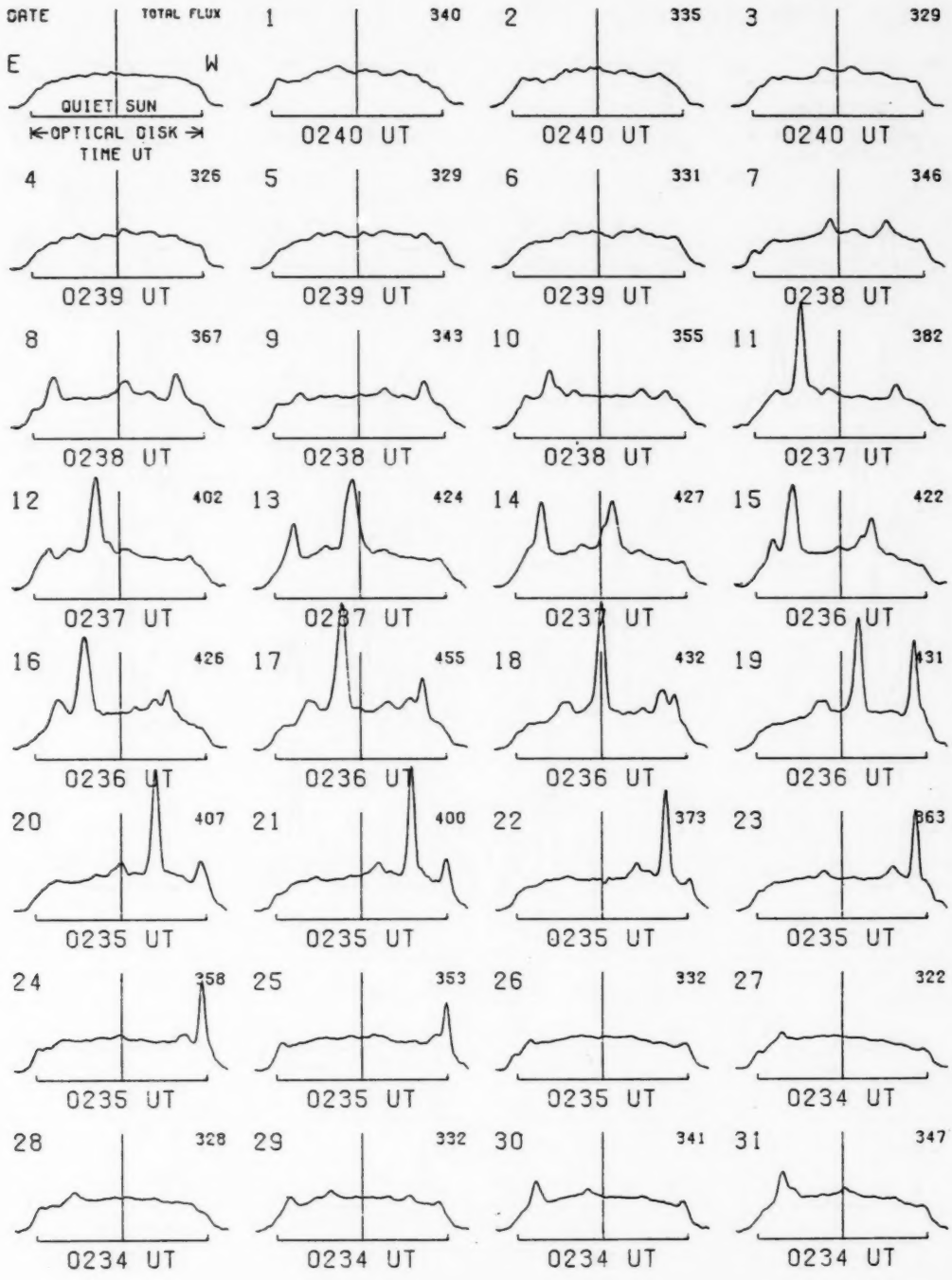
EAST-WEST SOLAR SCANS

OCTOBER 1981

TOYOKAWA, JAPAN

3 CM

FAN BEAM WITH 1.1 MINUTES OF ARC



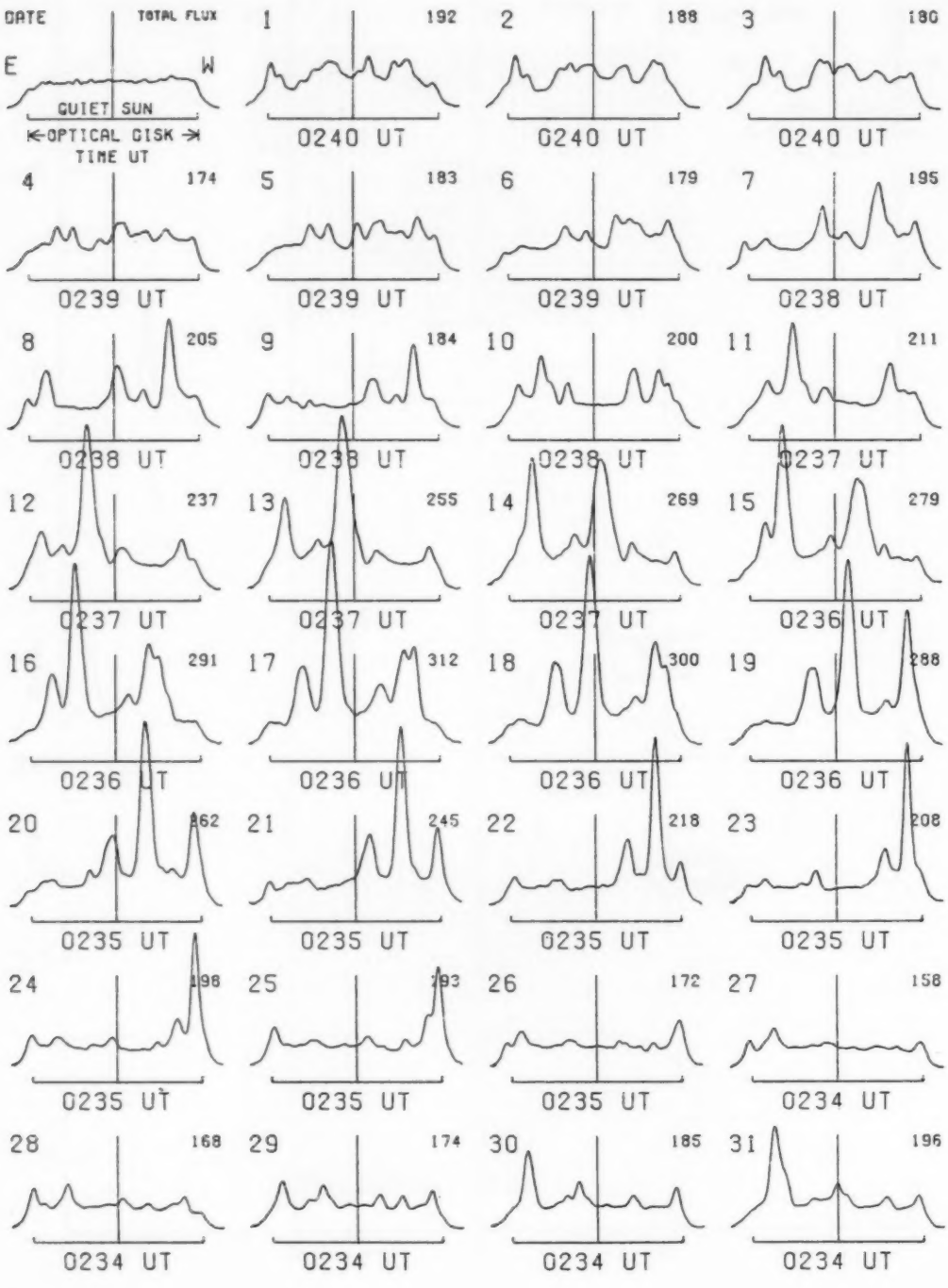
30
Oct 81

EAST-WEST SOLAR SCANS

OCTOBER 1981

TOYOKAWA.JAPAN

8 CM
FAN BEAM WITH 1.1 MINUTES OF ARC

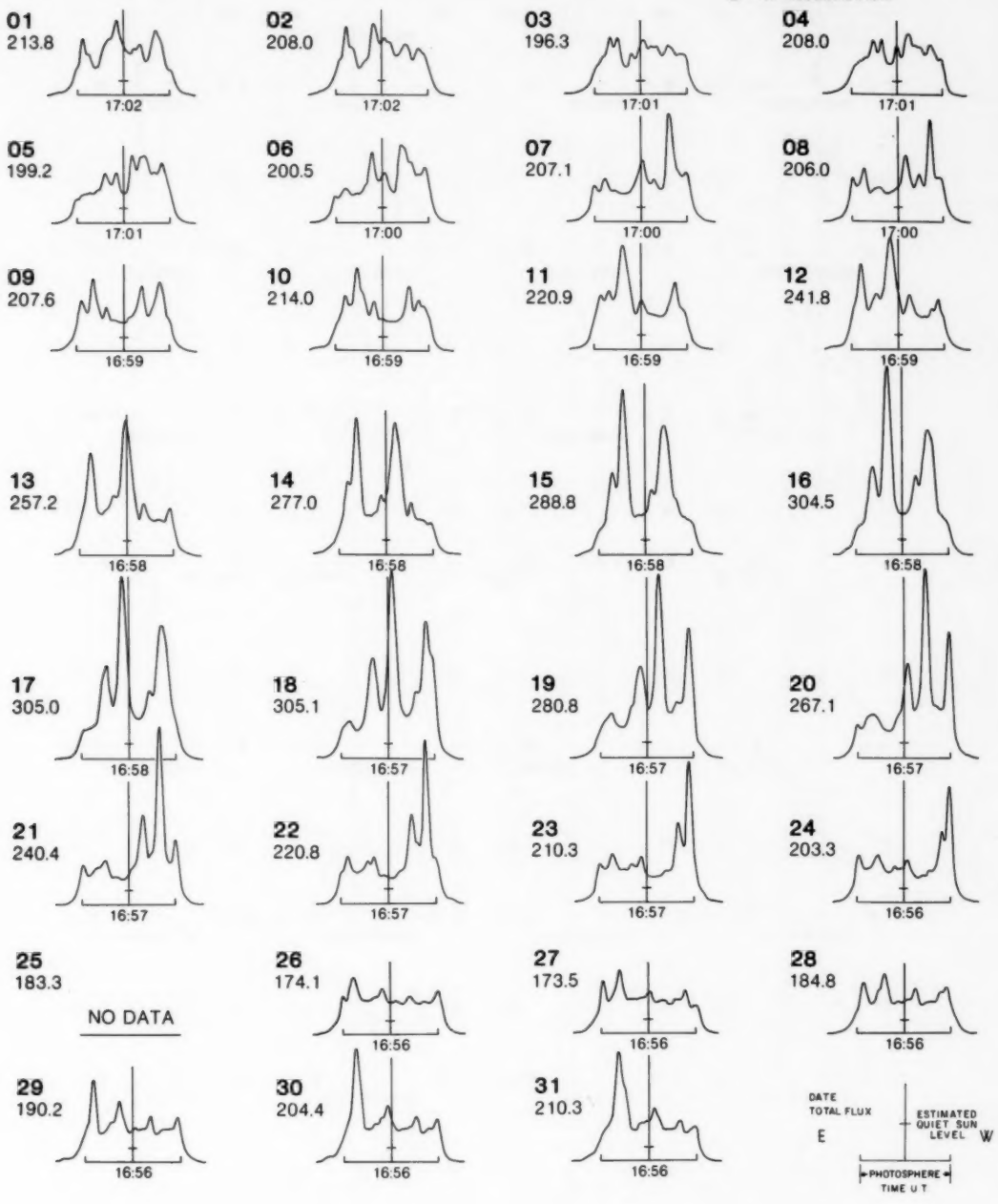


EAST-WEST SOLAR SCANS

OCTOBER 1981

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution

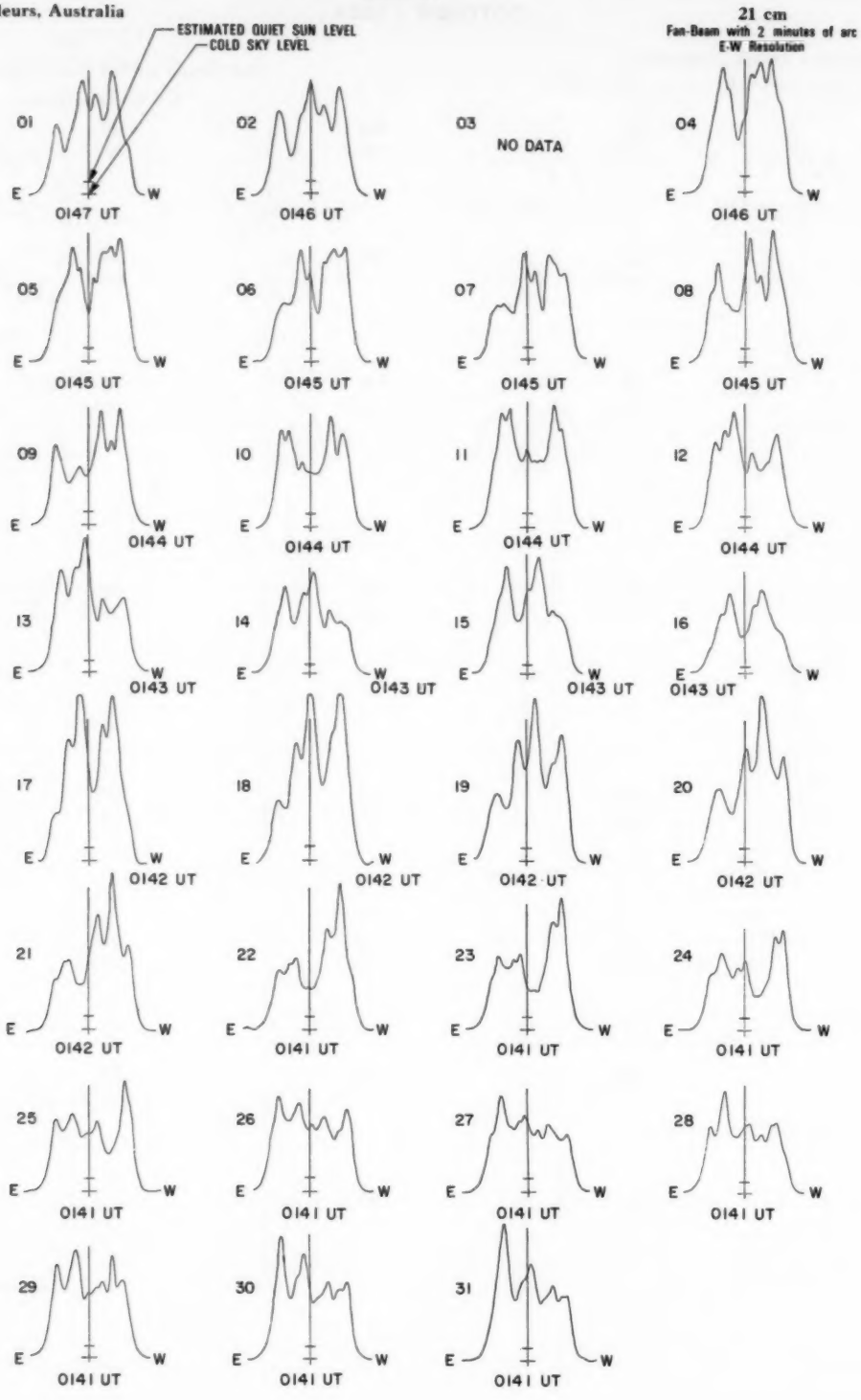


EAST-WEST SOLAR SCANS

OCTOBER 1981

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

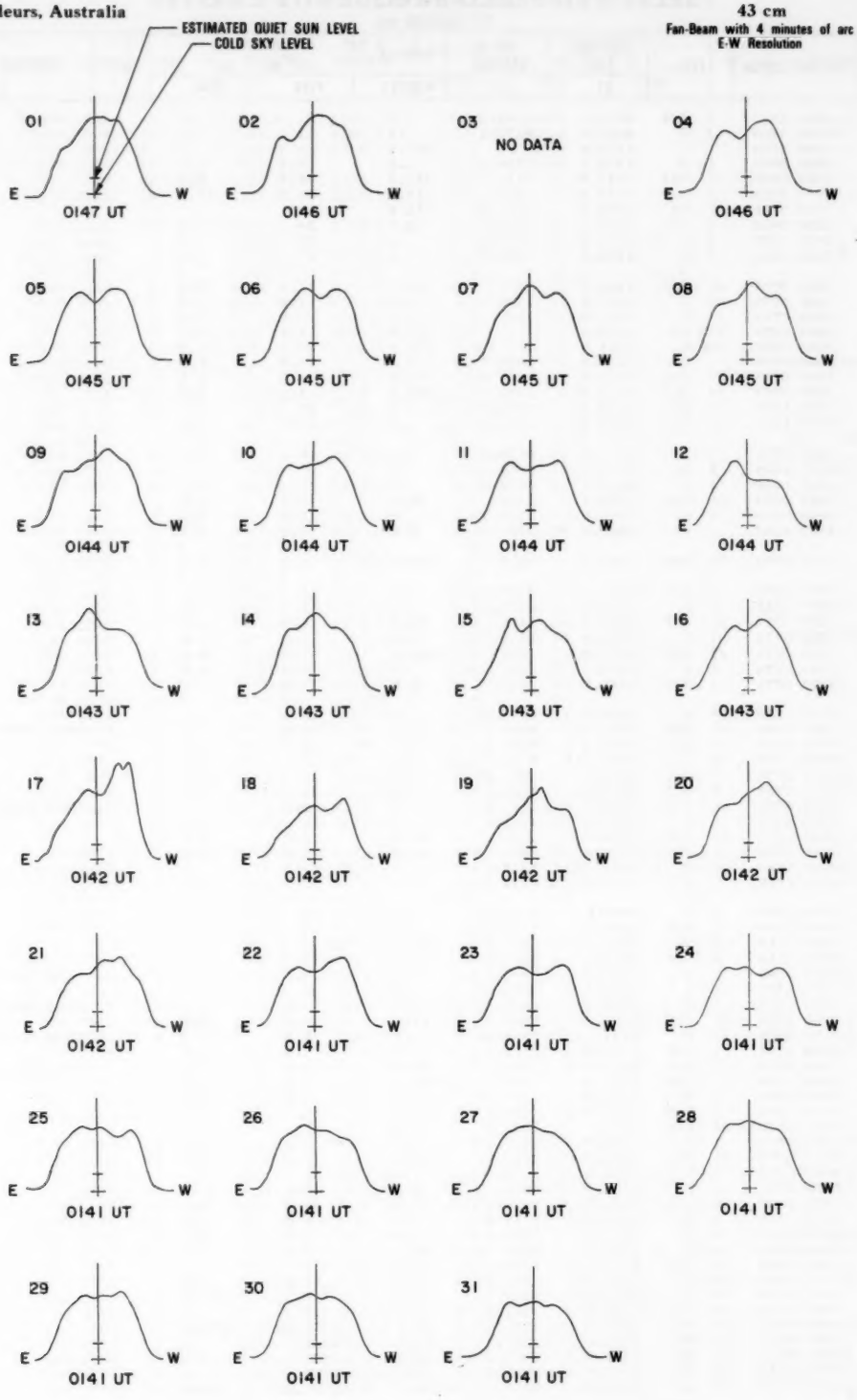


EAST-WEST SOLAR SCANS

OCTOBER 1981

Fleurs, Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

OCTOBER 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
01	2695	LEAR	4 S/F	0151.1	0152.1	2.2	11			
	8800	LEAR	8 S	0152.0	0152.1	.1	11			
	2800	OTTA		1615.0		205.0	5.4			
	2800	OTTA	1 S	1737.5	1738.3	1.5	2.4	1.8		
	2800	OTTA	21 GRF	1945.0	2117	275.0	18.4	8.2		
	2800	OTTA	4 S/F	1945.0	1959	19.0	51.0	10.2		
	2695	PALE	47 GB	1950.1	1953.3	15.0	18			
	8800	PALE	4 S/F	1954.5	1958.8	14.1	38			
	2695	LEAR	8 S	2358.8	2359.0	.3	05			
	8800	LEAR	8 S	2358.8	2359.0	.3	05			
02	2800	OTTA	21 GRF	1245.0	1353	190.0	11.0	5.5		
	2800	OTTA	1 S	1259.0	1301.5	9.0	5.6	2.0		
	2800	OTTA	24 R	1615.0	1631	16.0	4.8	2.4		
	2800	OTTA	27A RF	1615.0		190.0	4.8	4.4		
	2800	OTTA	24P R	1631.0		159.0	4.8			
	2800	OTTA	1 S	1632.0	1633.7	2.2	2.4	1.2		
	2800	OTTA	25 FAL	1910.0	1925	15.0	4.8	2.4		
	2800	OTTA	20 GRF	1940.0	2020	100.0	3.6	1.8		
	2695	LEAR	8 S	2358.8	2359.0	.3	05			
	8800	LEAR	8 S	2358.8	2359.0	.3	05			
03	8800	ATHN	8 S	0510.0	0510.6	1.0	10			
	8800	LEAR	8 S	0510.1	0510.5	.5	15			
	2695	LEAR	8 S	0510.1	0510.5	.5	21			
	2800	OTTA	20 GRF	1245.0	1303	70.0	5.8	3.0		
	2800	OTTA	8 S	1552.9	1552.3	.8	2.4	1.2		
	2695	PENT	1 S	2005.0	2006.3	3.0	6.8	2.3		
04	2800	OTTA	20 GRF	1740.0	1825	110.0	5.0	2.5		
05	2695	LEAR	4 S/F	0151.1	0152.1	2.2	11			
	8800	LEAR	8 S	0152.0	0152.1	.1	11			
	2800	OTTA	21 GRF	1417.0	1425	20.0	6.8	3.4		
	2800	OTTA	1 S	1419.5	1419.9	2.0	6.8	2.4		
	2800	OTTA	21 GRF	1445.0	1630	310.0	7.6	4.0		
	2800	OTTA	8 S	1522.7	1523	.7	9.0	4.5		
	2800	OTTA	2 S/F	1900.8	1902	2.0	2.8			
06	2695	LEAR	8 S	0544.0	0544.0	.1	21			
	3200	BERN	22 GRF	0549.1	0601.1	38.0	41.0			ONLY PAPER REC
	2695	LEAR	4 S/F	0558.1	0601.3	4.7	30			
	8800	LEAR	4 S/F	0559.0	0601.3	4.1	28			
	8800	ATHN	4 S/F	0600.6	0601.6	2.5	16			
	2695	ATHN	8 S	0600.6	0601.5	2.0D	19			
	3200	BERN	4 S/F	1100.5	1101.2	5.0	16.0			ONLY PAPER REC
	8800	ATHN	8 S	1131.5	1131.6	.1	75			
	2800	OTTA	20 GRF	1620.0	1623	35.0	2.8	1.4		
	2800	OTTA	20 GRF	1840.0	2007	140.0	5.4	2.8		
	8800	LEAR	8 S	2330.6E	2330.6	.5	52			
	2695	LEAR	8 S	2330.6E	2330.6	.5	37			
07	2695	LEAR	8 S	0448.6	0449.0	1.5	10			
	8800	LEAR	4 S/F	0448.8	0450.3	3.5	09			
	8800	PALE	49 GB	0619.5	2252.6	998.1	2000			
	2695	LEAR	4 S/F	0924.3	0925.3	5.5	19			
	3200	BERN	1 S	0924.5	0925.2	3.0	11.0			ONLY PAPER REC
	2695	LEAR	8 S	0925.5	0926.0	1.0D	09			
	3200	BERN	1 S	1026.1	1027.5	3.5	11.0			ONLY PAPER REC
	2800	OTTA	21 GRF	1233.0	1245	27.0	3.8	2.0		
	3200	BERN	45 C	1233.7	1234.8	3.0	8.0			ONLY PAPER REC
	2800	OTTA	2 S/F	1233.9	1235.9	3.0	5.0	3.8		
	3200	BERN	22 GRF	1324.2	1329.1	40.0	15.0			ONLY PAPER REC
	2800	OTTA	21 GRF	1325.0	1350	150.0	8.0	4.0		
	2800	OTTA	1 S	1329.0	1329.4	1.0	5.0	2.0		
	8800	SGMR	4 S/F	1335.3	1340.3	12.7	11			
	2695	SGMR	4 S/F	1335.5	1338.6	5.8D	04			
	2800	OTTA	1 S	1349.0	1349.8	2.0	2.0	1.0		
	2800	OTTA	21 GRF	1625.0	1815	230.0	7.2	3.8		
	8800	SGMR	4 S/F	1632.6	1636.1	8.4D	65			
	2800	OTTA	1 S	1633.3	1636	6.0	7.8	2.6		
	2695	SGMR	4 S/F	1633.8	1635.1	5.3D	09			
	2800	OTTA	1 S	1714.5	1715.4	2.5	4.6	2.0		
	2800	OTTA	1 S	1943.0	1943.2	1.0	3.8	1.9		
	2695	PENT	240 R	2155.0	2205	10.0	3.6	1.8		
	2695	LEAR	4 S/F	2241.8	2243.1	4.0	34			
	2695	PENT	28PRE	2242.0	2243.3	8.0	28.0	7.0		
	2695	PENT	47 GB	2250.0	2311	37.0	1730.0	598.0		
	2695	LEAR	49 GB	2250.6	2251.6	14.2	18			
	8800	MANI	47 GB	2252.3	2305.6	85.7	1780.0D	593.3D		
	2695	PALE	49 GB	2252.6	2257.3	84.5	8300			
	8800	PALE	49 GB	2252.5	2257.6	84.9	2000			
	8800	LEAR	49 GB	2252.8	2257.6	12.0	1800			
	2695	MANI	47 GB	2252.8	2311.5	86.2	1700.0D	566.7D		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
OCTOBER 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
07	8800	LEAR	49	GB	2304.8	2305.6	11.7	7400			
	2695	LEAR	49	GB	2304.8	2306.5	11.7	1100			
	2695	LEAR	47	GB	2316.5	2310.8	71.5	1399			
	8800	LEAR	47	GB	2316.5		61.1	7400			
	2695	PENT	30	PBI	2327.0	2327	70.0D	55.0			
	2695	PENT	40	F	2329.0	2355.5	50.0	91.0			
08	2695	LEAR	4	S/F	0105.6	0108.8	5.5	32			
	8800	MANI	3	S	0128.8	0132.6	8.5	81.2	27.1		
	2695	LEAR	4	S/F	0129.8	0133.0	7.8	70			
	2695	MANI	3	S	0129.8	0133.3	9.2	90.0	30.0		
	8800	LEAR	4	S/F	0130.1	0132.0	4.7	38			
	8800	LEAR	8	S	0231.8	0232.0	.8	22			
	2695	LEAR	8	S	0231.8	0232.1	.8	07			
	8800	LEAR	8	S	0908.3	0909.0	1.0	18			
	8800	SGMR	8	S	1141.8	1142.6	2.0	24			
	3200	BERN	3	S	1141.8	1142.5	9.0	15.0			ONLY PAPER REC
	2695	SGMR	8	S	1142.1	1142.6	1.7D	09			
	2800	OTTA	20	GRF	1210.0	1230	50.0	4.0	2.0		
	2800	OTTA	21	GRF	1330.0	1505	245.0	7.4	3.7		
	2800	OTTA	21	GRF	1600.0	1625	65.0	4.2	2.4		
	3200	BERN	4	S/F	1603.6	1604.7	5.0U	45.0			ONLY PAPER REC
	8800	SGMR	4	S/F	1603.6	1604.8	3.5	40			
	2800	OTTA	3	S	1604.0	1605	3.0	41.0	14.0		
	2695	SGMR	4	S/F	1604.0	1605.0	3.3D	41			
09	2695	LEAR	4	S/F	0006.1	0007.0	2.4	07			
	8800	LEAR	4	S/F	0006.1	0007.3	4.4	20			
	2695	LEAR	8	S	0231.8	0232.1	.8	07			
	8800	LEAR	8	S	0231.8	0232.0	.8	22			
	8800	LEAR	8	S	0354.8	0355.3	1.5	11			
	8800	LEAR	4	S/F	0543.6	0544.6	5.0	13			
	8800	LEAR	4	S/F	0613.8	0614.0	2.2	13			
	8800	LEAR	8	S	0733.6	0734.1	1.2	44			
	3200	BERN	3	S	1026.5	1027.0	2.0	23.0			ONLY PAPER REC
	2800	OTTA	40	F	1300.0	1305	15.0	11.0			
	2695	ATHN	8	S	1420.0	1420.5	1.0	23			
	8800	SGMR	4	S/F	1420.0	1421.8	5.6	45			
	8800	ATHN	8	S	1420.0	1420.5	1.0	29			
	2695	SGMR	8	S	1421.3	1421.8	1.3D	13			
	2800	OTTA	240	R	1510.0	1530	20.0	4.0	2.4		
	2800	OTTA	1	S	1617.5	1619	2.5	3.8			
	2800	OTTA	22	GRF	1650.0	1745	90.0	3.6			
	8800	SGMR	4	S/F	1826.6	1827.8	5.2D	25			
	2800	OTTA	4	S/F	1912.2	1913.7	4.0	17.4	8.0		
	8800	PALE	8	S	1913.6	1913.6	.2	28			
	8800	PALE	4	S/F	2117.3	2118.0	2.8	100			
10	8800	MANI	3	S	0531.6	0532.3	1.9	155.9	52.0		
	2695	MANI	3	S	0531.7	0532.2	1.1	35.4	11.8		
	8800	LEAR	4	S/F	0532.1	0532.8	4.7	190			
	8800	ATHN	8	S	0532.1	0532.8	2.0	98			
	2695	ATHN	8	S	0532.1	0533.0	1.2	33			
	2695	LEAR	8	S	0532.5	0532.8	.6	36			
	2695	ATHN	8	S	0551.5	0551.6	.3	18			
	8800	ATHN	8	S	0551.5	0551.6	.5	61			
	8800	LEAR	8	S	0551.6	0551.6	2.0	160			
	2695	LEAR	8	S	0551.6	0551.8	.7	19			
	2800	OTTA	240	R	1410.0	1420	10.0	4.0	2.0		
	2800	OTTA	21	GRF	1423.0	1437	37.0	3.2	1.8		
	8800	SGMR	4	S/F	1423.5	1424.6	10.1D	27			
	2800	OTTA	1	S	1423.8	1424.1	2.0	2.4			
	2800	OTTA	8	S	1721.7	1721.8	.3	4.2			
	2800	OTTA	20	GRF	1805.0	1810	20.0	3.2	1.6		
	2800	OTTA	23	GRF	1900.0	2120	230.0	8.8	4.4		
	2800	OTTA	3	S	2058.0	2059	3.0	29.0	9.6		
11	3200	BERN	3	S	0746.7	0747.5	3.0	31.0			ONLY PAPER REC
	3200	BERN	3	S	0821.0	0821.5	1.5U	38.0			ONLY PAPER REC
	3200	BERN	3	S	1028.5	1029.0	2.5	19.0			ONLY PAPER REC
	3200	BERN	45	C	1036.1	1038.2	4.5	34.0			ONLY PAPER REC
	2800	OTTA	21	GRF	1220.0	1230	40.0	6.4	3.2		
	2800	OTTA	45	C	1223.0	1223.5	3.5	9.0	4.5		
	3200	BERN	22	GRF	1223.0	1223.7	9.0	15.0			ONLY PAPER REC
	3200	BERN	41	F	1240.2	1240.7	12.0U	23.0			ONLY PAPER REC
	2800	OTTA	3	S	1240.3	1240.7	1.0	13.6	6.4		
	2800	OTTA	1	S	1248.0	1248.3	1.0	4.6	2.0		
	2800	OTTA	8	S	1430.9	1431	.4	5.8			
	2800	OTTA	1	S	1511.0	1511.5	1.3	5.4	2.7		
	3200	BERN	4	S/F	1511.3	1511.7	1.5	11.0			ONLY PAPER REC
	2800	OTTA	8	S	1552.8	1553	.6	4.4	2.0		
	2800	OTTA	22	GRF	1610.0	1635	80.0	3.6	2.0		
	2800	OTTA	8	S	1803.7	1803.8	.4	5.8	2.9		
	2800	OTTA	22	GRF	1910.0	2030	270.0	7.2	4.6		
12	2695	MANI	4	S/F	0432.0	0437.4	15.0	227.4	75.8		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

OCTOBER 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
12	8800	MANI	4 S/F	0432.0	0437.4	10.0	77.4	25.8		
	8800	MANI	47 GB	0620.3	0648.0D	86.7	19750.0D	6583.0D		
	2695	MANI	47 GB	0620.3	0650.8	88.7	22750.0	6000.0		
	3200	BERN	47 GB	0729.5E	0729.5E	19.0D	193.0D			ONLY PAPER REC
	3200	BERN	45 C	0959.7	1010.3	50.0	93.0			ONLY PAPER REC
	3200	BERN	22 GRF	1056.5	1113.5	32.0U	45.0			ONLY PAPER REC
	3200	BERN	4 S/F	1139.5	1140.5	2.5	32.0			ONLY PAPER REC
	2800	OTTA	240 R	1405.0	1420	15.0	5.4			
	2800	OTTA	28 GRF	1425.0	1450	40.0	5.0	2.6		
	2800	OTTA	22 GRF	1650.8	1702	30.0	3.6			
	2800	OTTA	3 S	1759.0	1800	2.2	16.0	8.2		
	2800	OTTA	30 PBI	1801.5	1801.5	15.0	4.0	2.0		
	2800	OTTA	3 S	1803.0	1803.4	1.5	12.0	4.2		
	2800	OTTA	240 R	1820.0	1830	10.0	3.6	1.8		
	2800	OTTA	1 S	1900.0	1903	1.0	5.4	2.7		
	2695	PENT	1 S	2006.0	2006.3	2.0	4.4	1.6		
	2800	OTTA	4 S/F	2026.2	2026.8	3.0	31.0	10.4		
	2800	OTTA	21 GRF	2044.0	2115	135.0	7.2	3.6		
	2800	OTTA	2 S	2044.0	2044.2	1.5	9.8	3.3		
	2695	PENT	1A S	2155.0	2156.5	2.5	3.6	2.0		
	2695	PENT	8 S	2156.8	2156.8	.1	90.0			
	2695	PENT	1 S	2323.5	2324	2.0	4.6	2.3		
	2695	PENT	8 S	2344.0	2344.2	.3	14.4			
	2695	PENT	3 S	2353.0	2353.5	1.5	12.6	6.3		
13	2695	PENT	3 S	0020.5	0021.1	1.8	25.0	9.0		
	2695	MANI	3 S	0021.3	0021.4	.3	15.5	5.2		
	8800	MANI	1 S	0021.3	0021.4	.3	94.0	31.3		
	2695	MANI	3 S	0201.5	0201.7	1.5	38.7	12.9		
	8800	MANI	3 S	0201.5	0201.7	1.1	126.1	42.0		
	2695	MANI	4 S/F	0304.8	0306.9	3.7	38.7	12.9		
	8800	MANI	3 S	0305.0	0307.0	3.5	93.4	31.1		
	8800	MANI	3 S	0419.5	0420.6	2.0	28.0	9.3		
	2695	MANI	3 S	0420.0	0420.6	1.5	34.8	11.6		
	2695	MANI	4 S/F	0711.3	0712.0	3.7	108.4	36.1		
	8800	MANI	4 S/F	0711.5	0712.0	4.5	84.1	28.0		
	2800	OTTA	1A S	1424.6	1425	7.0	3.6	1.6		
	2800	OTTA	8 S	1428.8	1428.9	.3	4.6			
	2800	OTTA	3 S	1609.5	1609.9	1.0	17.0	4.4		
	2800	OTTA	21 GRF	1815.0	1832	35.0	6.0	3.0		
	2800	OTTA	3 S	1815.0	1815.9	5.0	157.0	36.0		
	2800	OTTA	1 S	1821.5	1823	4.0	4.0	2.0		
	2800	OTTA	45 C	1828.3	1829	2.0	13.6			
	2800	OTTA	3A S	1947.0	1954	10.2	18.4	6.2		
	2800	OTTA	240AR	1947.0	2050	53.0	7.0			
	2800	OTTA	40 F	1947.7	1950.2	50.0	57.0			
	2695	PENT	1 S	2009.7	2010	2.0	3.4	1.7		
	2695	PENT	8 S	2015.1	2015.2	.3	2.4	1.2		
	2800	OTTA	1 S	2043.0	2045.8	5.0	4.6	2.3		
	2695	PENT	23 GRF	2240.0	2320	65.0	9.2			
	2695	PENT	1 S	2244.5	2245	1.5	9.6	4.4		
	2695	PENT	4 S/F	2247.0	2248.5	7.0	52.0	19.6		
	8800	MANI	4 S/F	2248.0	2248.9	3.0	81.3	27.1		
	2695	MANI	3 S	2248.5	2249.2	2.3	90.9	30.3		
	2695	PENT	4 S/F	2304.0	2307.3	13.0	226.0	28.0		
	8800	MANI	3 S	2306.9	2307.5	2.6	140.9	47.0		
	2695	MANI	3 S	2306.9	2308.0	2.8	187.4	62.5		
14	8800	MANI	3 S	0350.3	0351.2	1.4	96.8	32.3		
	2695	MANI	4 S/F	0350.5	0351.2	5.4	55.4	18.5		
	8800	MANI	3 S	0421.3	0421.8	1.1	72.6	24.2		
	2695	MANI	3 S	0421.3	0421.8	1.1	123.5	41.2		
	3200	BERN	4 S/F	0726.5	0726.8	1.5	8.0			ONLY PAPER REC
	2800	OTTA	8 S	1235.2	1235.3	.8	7.2			
	2800	OTTA	21 GRF	1304.0	1340	65.0	6.6	4.0		
	3200	BERN	22 GRF	1304.1	1313.1	16.0	8.0			ONLY PAPER REC
	2800	OTTA	1 S	1304.3	1305	1.5	2.2	1.1		
	2800	OTTA	1 S	1308.0	1308.3	1.0	5.0	2.0		
	2800	OTTA	1 S	1313.0	1313.3	1.5	3.8	2.0		
	2800	OTTA	8 S	1324.8	1325	.5	2.2			
	2800	OTTA	1 S	1326.5	1327	1.3	3.4	1.7		
	2800	OTTA	1 S	1355.8	1356.5	2.2	2.2			
	2800	OTTA	21 GRF	1442.0	1448	30.0	10.0	4.6		
	3200	BERN	45 C	1442.5	1442.7	6.0	32.0			ONLY PAPER REC
	2800	OTTA	3 S	1442.8	1443	3.2	41.0	10.2		
	2800	OTTA	8 S	1557.7	1557.8	.4	3.4			
	2800	OTTA	240AR	1630.0	1650	20.0	4.4	2.4		
	2800	OTTA	4 S/F	1643.5	1644.4	4.5	105.0	24.0		
	2695	PENT	47 GB	1704.0	1706	8.0	670.0	196.0		
	2800	OTTA	30 PBI	1712.0	1712	88.0	11.0	5.5		
	2800	OTTA	40 F	1718.5	1720	3.5	6.2			
	2800	OTTA	1 S	1724.5	1726	7.0	6.2	2.8		
	2800	OTTA	8 S	1806.7	1806.9	.8	3.4	1.7		
	2800	OTTA	21 GRF	1853.0	1904	80.0	6.8	3.4		
	2800	OTTA	3 S	1857.5	1859.5	4.5	12.0	4.0		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

OCTOBER 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
14	2800	OTTA	8	S	1918.9	1919	.5	3.8	1.9		
	2800	OTTA	2	S/F	1955.5	1957	4.5	7.6	3.7		
	2800	OTTA	21	GRF	2043.0	2100	30.0	4.8			
	2800	OTTA	1	S	2046.7	2047.3	1.3	7.2	3.6		
	2800	OTTA	3	S	2053.7	2054	2.0	31.0	7.8		
	2800	OTTA	3	S	2147.2	2148.3	5.0	45.0	14.0		
	2695	PENT	2	S/F	2301.0	2301.5	2.0	9.6	4.8		
15	2695	MANI	3	S	0325.7	0327.0	4.0	17.6	5.9		
	8800	MANI	3	S	0325.8	0328.0	5.0	97.4	32.5		
	2695	MANI	47	GB	0444.0	0445.1	4.0	1400.0D	467.0D		
	8800	MANI	47	GB	0444.0	0445.2	5.0	9600.0D	3200.0D		
	8800	MANI	47	GB	0553.5	0557.0	5.5	1082.0	360.7		
	2695	MANI	4	S/F	0553.5	0557.0	5.5	293.5	97.8		
	3200	BERN	4	S/F	0637.7	0638.5	13.0	231.0			ONLY PAPER REC
	8800	MANI	47	GB	0639.0	0640.0	6.0	541.0	180.3		
	2695	MANI	3	S	0639.2	0640.0	8.8	498.9	166.3		
	2800	OTTA	1	S	1257.0	1257.8	1.3	7.2			
	3200	BERN	4	S/F	1337.0	1337.1	1.0	17.0			ONLY PAPER REC
	2800	OTTA	3	S	1337.0	1337.3	1.0	14.2	5.0		
	2800	OTTA	21	GRF	1445.0	1545	85.0	5.4	2.7		
	2800	OTTA	4	S/F	1530.8	1532.3	3.0	22.0	7.3		
	3200	BERN	4	S/F	1531.0	1532.6	2.5	31.0			ONLY PAPER REC
	2800	OTTA	3	S	1538.5	1540.5	3.0	49.0	12.2		
	3200	BERN	4	S/F	1538.5	1540.5	2.5	26.0			ONLY PAPER REC
	3200	BERN	4	S/F	1556.5	1557.5	2.0U	33.0U			ONLY PAPER REC
	2800	OTTA	3	S	1557.0	1557.7	3.0	27.0	4.6		
	2800	OTTA	47	GB	2018.0	2018.9	4.0	645.0	43.0		
	2800	OTTA	29	PBI	2022.0	2022	8.0	3.8	1.9		
	2800	OTTA	4	S/F	2037.0		9.0	28.0	14.0		
	2800	OTTA	30	PBI	2046.0	2046	14.0	5.2	2.6		
	2800	OTTA	1	S	2048.2	2048.5	2.0	2.8	1.4		
	2695	PENT	1	S	2231.5	2232.2	2.5	6.4	3.0		
16	8800	MANI	3	S	0312.0	0313.0	7.5	50.5	16.8		
	8800	MANI	3	S	0350.3	0350.8	1.7	183.6	61.2		
	2695	MANI	3	S	0350.5	0351.0	1.5	21.3	7.1		
	3200	BERN	3	S	1150.3	1153.0	8.0	11.0			ONLY PAPER REC
	3200	BERN	46	C	1208.1	1248.0	51.0	118.0			ONLY PAPER REC
	2800	OTTA	21	GRF	1214.0		105.0	33.0	19.8		
	2800	OTTA	8	S	1215.7	1215.9	.3	6.6	3.3		
	2800	OTTA	4	S/F	1224.0	1225.9	15.0	241.0	52.0		
	2800	OTTA	46F	C	1245.0	1248	10.0	178.0	27.0		
	2800	OTTA	240	R	1530.0	1610	40.0	5.4	3.0		
	2800	OTTA	45	C	1718.0	1719	4.0	15.4	7.7		
	2800	OTTA	1	S	1746.0	1748.5	8.0	6.0	3.0		
	2800	OTTA	21	GRF	1813.0	1845	50.0	5.4	2.7		
	2800	OTTA	8	S	1850.5	1850.8	.8	7.6	3.8		
	2800	OTTA	240	R	1950.0	2005	15.0	5.4	2.8		
	2800	OTTA	23	GRF	2010.0	2045	80.0	13.0	6.5		
	2800	OTTA	3	S	2049.0	2052	5.0	11.0	5.5		
	2695	PENT	8	S	2228.8	2228.8	.2	7.8			
	2695	PENT	3	S	2231.5	2233	4.5	10.4	7.4		
	2695	PENT	4	S/F	2342.5	2343	1.0	20.8	7.0		
17	3200	BERN	22	GRF	0733.1	0736.1	23.0	39.0			ONLY PAPER REC
	2695	MANI	4	S/F	0735.0	0736.6	10.0	79.5	26.5		
	2800	OTTA	22	GRF	1315.0	1517	190.0	22.8	7.6		
	2800	OTTA	23	GRF	1700.0	1800	38.0	19.6	12.0		
	2800	OTTA	4	S/F	1743.5	1748.5	15.0	46.0	16.0		
	2800	OTTA	1	S	1831.0	1832.2	3.0	5.6	2.8		
	2800	OTTA	1	S	1927.0	1928.2	2.0	6.2	3.0		
18	3200	BERN	22	GRF	0840.3	0841.2	10.0	9.0			ONLY PAPER REC
	3200	BERN	47	GB	1052.5	1125.5U	170.0U	600.0D			ONLY PAPER REC
	2800	OTTA	21	GRF	1215.0	1227	445.0D	65.0			
	2800	OTTA	8	S	1340.9	1341	.2	8.0			
	2800	OTTA	1	S	1437.0	1437.1	1.2	6.2	3.0		
	2800	OTTA	1	S	1539.0	1539.1	1.0	6.2	3.0		
	2800	OTTA	21	GRF	1600.0	1603	45.0	11.6	5.0		
	2800	OTTA	1	S	1603.2	1603.7	1.0	4.4	2.2		
	2800	OTTA	20	GRF	1830.0	1837	30.0	6.8	3.4		
	2695	PENT	26	FAL	2230.0	2255	25.0	7.8	3.9		
19	8800	MANI	3	S	0232.0	0232.5	1.3	252.4	84.1		
	2695	MANI	3	S	0232.0	0232.5	1.0	19.1	6.4		
	2695	MANI	4	S/F	0308.2	0313.0	16.1	67.8	22.6		
	8800	MANI	4	S/F	0309.5	0313.0	10.0	64.6	21.5		
	2695	MANI	3	S	0655.0	0655.5	1.5	4.2	1.4		
	8800	MANI	3	S	0655.0	0655.5	1.5	105.7	35.2		
	8800	LEAR	8	S	0721.6	0721.8	.5	11			
	3200	BERN	8	S	0941.1	0941.5	.5	13.0			ONLY PAPER REC
	8400	BERN	4	S/F	1018.0	1019.6	3.0	85.0			
	3200	BERN	4	S/F	1045.5	1047.0	9.5	26.0			ONLY PAPER REC
	2800	OTTA	20	GRF	1315.0	1330	35.0	3.8	2.0		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

OCTOBER 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
19	8800	SGMR	8 S	1446.3	1447.0	1.0	71			
	8800	SGMR	8 S	1506.8	1507.0	.3	30			
	8800	SGMR	8 S	1556.8	1557.8	1.5	37			
	2695	PALE	8 S	1708.0	1708.3	.3	30			
	8800	PALE	8 S	1708.1	1708.1	.2	39			
	2800	OTTA	240 FAL	1830.0	1910	40.0	6.6	3.3		
	8800	PALE	4 S/F	1918.1	1918.8	2.5	97			
	2695	PALE	4 S/F	2035.0	2035.6	17.6	220			
	8800	PALE	4 S/F	2035.0	2035.1	17.6	26			
	2800	OTTA	4 S/F	2035.0	2036	4.0	293.0			
	8800	PALE	4 S/F	2324.8	2326.6	10.3	64			
	8800	LEAR	4 S/F	2324.8	2326.6	4.2	44			
	8800	MANI	3 S	2326.3	2327.0	1.3	42.9	14.3		
20	8800	LEAR	8 S	0123.1	0123.5	.9	84			
	2695	LEAR	8 S	0123.1	0123.5	2.0	56			
	8800	PALE	8 S	0123.3	0123.5	.3	72			
	2695	PALE	8 S	0123.3	0123.6	.5	43			
	2695	LEAR	4 S/F	0148.6	0149.5	4.2	20			
	2695	MANI	4 S/F	0314.3	0328.4	25.7	90.3	30.1		
	2800	OTTA	21 GRF	1345.0	1525	36.0	18.6	9.0		
	2800	OTTA	1 S	1349.0	1351	5.0	5.8	2.8		
	2800	OTTA	40 F	1420.0	1424	20.0	7.0			
	2800	OTTA	1 S	1449.5	1450.5	2.0	7.6	2.6		
	2800	OTTA	45 C	1500.0	1511	13.0	36.0	11.0		
	2800	OTTA	21 GRF	2110.0	2130	50.0	6.2	3.1		
	2800	OTTA	3 S	2115.0	2117	7.0	12.2	6.0		
21	2695	MANI	3 S	0150.5	0150.9	4.0	90.9	30.3		
	8800	MANI	3 S	0150.5	0150.7	2.0	110.3	36.8		
	8800	MANI	3 S	0425.7	0427.0	3.3	63.1	21.0		
	2800	OTTA	3 S	1303.0	1305.2	5.0	33.0	11.0		
	3200	BERN	4 S/F	1304.2	1305.3	4.5	26.0			ONLY PAPER REC
	2800	OTTA	23 GRF	1320.0	1342	210.0	26.0	5.0		
	3200	BERN	20 GRF	1323.0	1336.1	57.0	33.0			ONLY PAPER REC
	8800	SGMR	4 S/F	1334.0	1337.5	13.5	17			
	2800	OTTA	3 S	1334.2	1336	3.0	12.6	6.3		
	2800	OTTA	3 S	1615.0	1617.5	15.0	18.2	5.0		
	2800	OTTA	40 F	1722.5	1722.7	1.2	26.0			
	2800	OTTA	1 S	1850.0	1853	4.5	7.8	3.6		
	8800	MANI	3 S	2306.0	2307.0	3.3	440.0	146.7		
22	2695	MANI	3 S	0049.5	0049.7	1.0	25.5	8.5		
	8800	MANI	47 GB	0638.6	0639.8	4.8	751.1	250.4		
	3200	BERN	1 S	0908.7	0910.7	9.0	13.0			ONLY PAPER REC
	3200	BERN	1 S	1007.2	1007.7	1.0	10.0			ONLY PAPER REC
	2800	OTTA	2 S/F	1249.0	1249.6	2.0	3.8			
	8800	SGMR	4 S/F	1452.5	1453.8	3.1D	119			
	8800	SGMR	4 S/F	1502.5	1503.5	3.1D	19			
	8800	PALE	8 S	2027.0	2027.5	3.8	50			
	8800	LEAR	4 S/F	2254.8	2255.3	6.5	29			
	2695	LEAR	4 S/F	2254.8	2255.5	6.5	06			
23	2695	LEAR	8 S	0026.3	0026.8	1.0	10			
	8800	LEAR	47 GB	0236.6	0236.6	9.5	17			
	8800	MANI	3 S	0238.5	0239.9	5.0	71.0	23.7		
	8800	PALE	4 S/F	0239.1	0239.6	2.4	54			
	2695	MANI	3 S	0239.3	0239.9	2.2	17.6	5.9		
	2695	LEAR	8 S	0240.0	0240.1	.1	09			
	2695	PALE	8 S	0340.5	0341.3	1.1	31			
	3200	BERN	3 S	1234.2	1236.3	22.0	43.0			ONLY PAPER REC
	2800	OTTA	3 S	1235.0	1236.2	2.5	20.0	11.0		
	2695	SGMR	8 S	1235.1	1236.1	1.2D	24			
	8800	SGMR	8 S	1235.1	1235.3	1.2D	37			
	8800	PALE	4 S/F	1756.6	1759.6	6.7	46			
	8800	SGMR	4 S/F	1757.1	1759.5	4.7	21			
	8800	LEAR	8 S	2259.5	2300.0	1.1	13			
24	8800	PALE	8 S	0141.3	0142.1	.3	33			
	2695	PALE	8 S	0141.3	0142.1	.2	22			
	8800	PALE	8 S	0310.0	0310.1	.3	23			
	8800	LEAR	8 S	0442.0	0442.3	.8	47			
	2695	LEAR	4 S/F	0547.1	0547.8	4.9	13			
	2800	OTTA	1 S	1418.0	1421	6.0	3.2	1.4		
	8800	SGMR	8 S	1517.0	1518.1	.5	24			
	8800	SGMR	8 S	1553.0	1554.1	.8	22			
	2800	OTTA	1 S	1825.0	1825.4	1.0	2.8			
	2695	MANI	4 S/F	2323.0	2338.2	29.5	65.2	21.7		
	8800	PALE	8 S	2325.5	2325.8	.2	38			
	2695	LEAR	47 GB	2331.0	2338.8	23.3	24			
	2695	PENT		2333.0	2347	24.0D	73.0			
	8800	LEAR	4 S/F	2336.0	2345.3	18.3	23			
	2695	PALE	47 GB	2338.5	2344.3	19.3	58			
	8800	PALE	47 GB	2339.6	2344.8	18.2	40			
	8800	LEAR	4 S/F	2354.3	2355.3	16.7	40			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

OCTOBER 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22}Wm^{-2}Hz^{-1}$ PEAK	FLUX DENSITY $10^{-22}Wm^{-2}Hz^{-1}$ MEAN	INT	REMARKS
24	2695	LEAR	4 S/F	2354.3	2347.6	15.2	77			
	8800	PALE	47 GB	2357.8	2358.1	12.8	51			
	2695	PALE	4 S/F	2357.8	2358.1	12.8	20			
25	8800	PALE	47 GB	0010.6	0011.5	6.4	30			
	8800	PALE	4 S/F	0143.5	0145.1	3.0	27			
	8800	PALE	8 S	0211.6	0211.8	.2	21			
	8800	PALE	8 S	0223.6	0223.8	.5	21			
	8800	LEAR	4 S/F	0314.0	0315.8	4.6	11			
	2695	LEAR	8 S	0621.1	0621.6	1.7	13			
	3200	BERN	1 S	0849.2	0850.1	4.0	8.0			ONLY PAPER REC
	3200	BERN	20 GRF	1128.0	1129.3	19.0U	8.0			ONLY PAPER REC
	2800	OTTA	21 GRF	1305.0	1340	155.0	6.6	3.3		
	8800	SGMR	8 S	1448.6	1449.1	.7	19			
	2800	OTTA	1 S	1519.5	1520	1.0	2.8	1.4		
	2800	OTTA	0 S	1738.3	1738.5	.5	2.4	1.2		
27	3200	BERN	1 S	1021.6	1022.0	4.0	13.0			ONLY PAPER REC
	2800	OTTA	22 GRF	1620.0	1632	15.0	3.4	1.7		
	2800	OTTA	4 S/F	1831.0	1834.3	10.0	51.0	20.0		
	2695	SGMR	4 S/F	1831.0	1834.3	7.1D	52			
	2695	PALE	4 S/F	1831.6	1834.3	5.4	57			
	8800	SGMR	4 S/F	1832.6	1834.1	5.4D	40			
	8800	PALE	4 S/F	1833.1	1834.3	2.9	41			
28	2800	OTTA	1 S	1623.8	1625	3.5	2.0			
29	2800	OTTA	240 R	1800.0	1850	50.0	5.0			
	2800	OTTA	20 GRF	1945.0	2020	80.0	3.2	2.2		
30	2695	LEAR	8 S	0551.8	0552.1	1.0	07			
	2800	OTTA	4 S/F	1226.0	1228.5	12.0	106.0	24.0		
	3200	BERN	4 S/F	1227.0	1229.0	12.0	110.0			
	2695	ATHN	4 S/F	1227.5	1228.3	8.8	89			
	8800	SGMR	4 S/F	1227.8	1228.3	6.2	40			
	2695	SGMR	4 S/F	1227.8	1228.3	6.5	86			
	8400	BERN	4 S/F	1228.0	1228.2	9.0	80.0			
	2800	OTTA	240 R	1435.0	1515	40.0	5.4	3.0		
	2695	PENT	20 GRF	2045.0	2150	130.0D	4.8			
31	8800	PALE	47 GB	0145.3	0145.6	11.7	13			
	2695	PALE	4 S/F	0146.1	0147.8	10.9	19			
	2695	LEAR	4 S/F	0450.8	0454.3	11.5	11			
	2695	LEAR	4 S/F	0539.1	0542.5	4.0	13			
	2695	LEAR	4 S/F	0716.6	0717.0	2.2	09			
	2800	OTTA	240 P	1720.0	1810	50.0	3.6	1.8		
	2800	OTTA	3 S	1818.0	1818.5	1.5	14.0	3.6		
	2695	PALE	8 S	1818.3	1818.5	.3	18			
	2800	OTTA	23 GRF	1830.0	2000	220.0	5.4	2.7		
	2800	OTTA	1 S	1944.0	1945	6.0	3.0	1.5		

Observatories:

BERN = Berne MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill
LEAR = Learmonth ATHN = Athens PALE = Palehua

Explanation of Type Code:

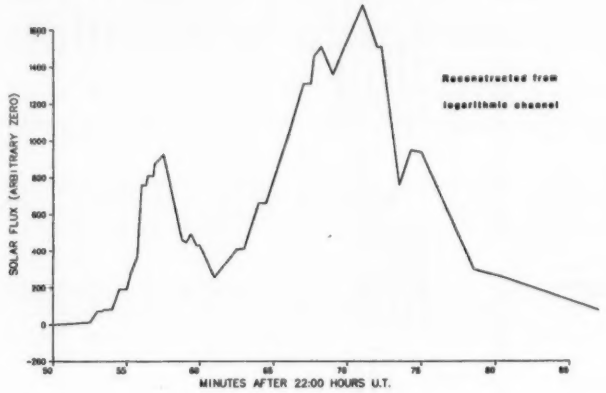
1 Simple 1 6 Minor 22 Simple 3F 27 Rise and Fall 32 Absorption 44 Noise Storm in Progress
2 Simple 1F 7 Minor + 23 Simple 3AF 28 Precursor 40 Fluctuation 45 Complex
3 Simple 2 8 Spike 24 Rise 29 Post Burst Increase 41 Group of Bursts 46 Complex F
4 Simple 2F 20 Simple 3 25 Rise A 30 Post Burst Increase A 42 Series of Bursts 47 Great Burst
5 Simple 21 Simple 3A 26 Fall 31 Post Burst Decrease 43 Onset of Noise Storm 48 Major
49 Major +

SELECTED SOLAR NOISE BURSTS

OCTOBER 7-30, 1981

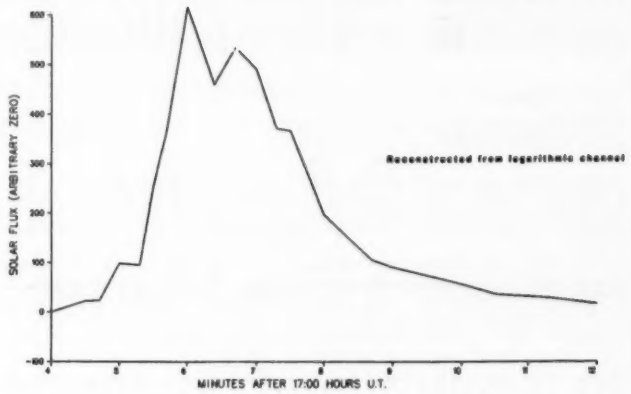
OCTOBER 7, 1981

SELECTED 2700 MHz SOLAR NOISE BURST
D.R.A.O. PENTICTON, B.C.
CANADA



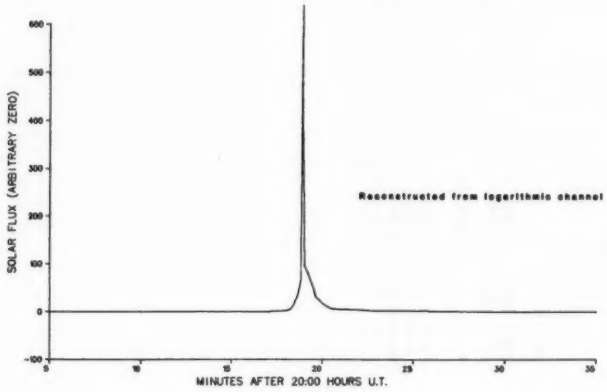
October 14, 1981

SELECTED 2700 MHz SOLAR NOISE BURST
D.R.A.O. PENTICTON, B.C.
CANADA



October 18, 1981

SELECTED 2700 MHz SOLAR NOISE BURST
D.R.A.O. PENTICTON, B.C.
CANADA



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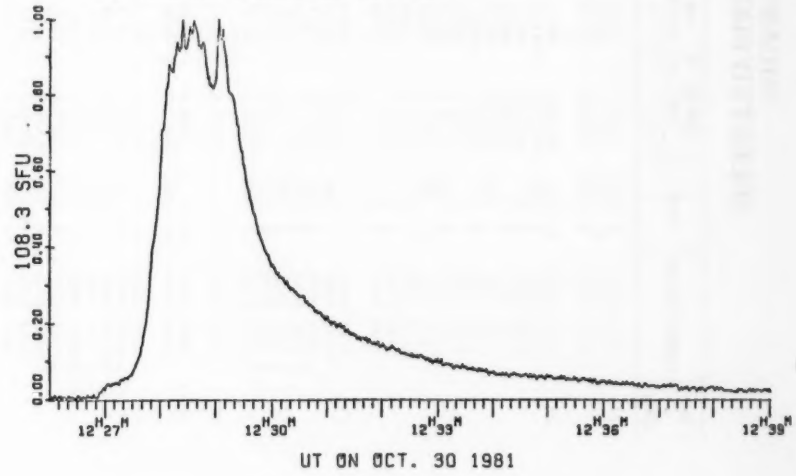
I 3.2, F=3.2 GHZ, BW=300.0 MHZ, T=0.1 SEC



SOLAR WIND

Interplanetary Scintillations

OCTOBER 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
811001	274	14	371	*	383	*	2	3C161	91	-2	1.05	14	1.27	1713.38
	274	17	355	*	384	*	2	3C222	44	-7	0.69	44	1.73	1713.36
	274	18	378	*	388	*	2	3C237	38	-3	0.62	51	1.97	1713.36
	274	22	431	37	381	12	3	3C298	28	44	0.47	-56	-6.59	1713.70
811002	275	10	359	16	449	20	2	3C144-	105	5	1.12	15	1.71	1713.38
	275	13	458	35	502	103	2	3C144	105	5	1.12	16	1.62	1713.43
	275	14	377	9	372	31	2	3C161	92	-2	1.05	14	1.28	1713.41
	275	18	501	15	528	16	3	3C237	39	-3	0.63	51	2.42	1713.42
	275	22	431	28	584	71	3	3C298	28	45	0.47	-56	-6.59	1713.74
811003	276	10	502	143	669	26	3	3C144-	106	5	1.12	16	1.60	1713.48
	276	13	471	43	623	21	3	3C144	106	5	1.12	15	1.58	1713.47
	276	14	402	38	539	106	2	3C161	92	-2	1.05	14	1.28	1713.46
	276	15	274	16	246	14	2	3C196	78	14	0.98	16	1.09	1713.39
	276	17	377	18	347	16	2	3C222	46	-6	0.72	43	1.81	1713.44
	276	18	468	26	392	29	2	3C237	39	-3	0.63	50	2.31	1713.46
811004	277	18	462	18	491	19	2	3C237	40	-2	0.64	49	2.26	1713.49
	277	22	426	80	422	25	2	3C298	26	48	0.44	-57	-6.79	1713.82
811005	278	12	359	21	433	158	2	3C144	108	5	1.13	15	1.79	1713.49
	278	18	376	37	386	33	2	3C237	41	-2	0.66	49	1.95	1713.51
	278	22	241	8	362	67	2	3C298	26	50	0.44	-57	-8.71	1713.80
811006	279	17	296	13	314	66	2	3C222	49	-5	0.75	40	1.44	1713.51
	279	18	296	32	314	21	2	3C237	42	-2	0.67	48	1.52	1713.51
	279	22	401	19	411	14	2	3C298	25	51	0.42	-57	-7.06	1713.89
811007	280	12	430	14	413	37	2	3C144	110	5	1.14	14	1.66	1713.60
	280	14	416	44	407	22	2	3C161	96	-3	1.07	14	1.36	1713.61
	280	16	333	49	295	42	2	3C222	50	-5	0.77	39	1.61	1713.57
811008	281	4	445	20	447	12	3	3C409	110	17	1.14	-9	-0.17	1713.70
	281	10	445	49	400	14	2	3C144-	111	5	1.14	14	1.65	1713.64
	281	13	386	56	412	12	3	3C144	111	5	1.14	15	1.77	1713.62
	281	14	424	13	368	9	3	3C161	97	-3	1.08	14	1.37	1713.65
	281	16	367	82	398	63	2	3C222	51	-5	0.78	38	1.75	1713.62
	281	17	427	43	426	35	3	3C237	44	-2	0.69	46	2.08	1713.63
	281	21	284	21	289	53	2	3C295	60	35	0.87	9	-0.26	1713.64
811009	282	0	442	31	430	12	2	3C368	78	17	0.98	-14	-1.18	1713.77
	282	10	392	19	410	28	2	3C144-	112	5	1.15	15	1.77	1713.65
	282	13	407	13	365	20	2	3C161	98	-3	1.08	13	1.34	1713.68
	282	16	356	54	352	58	2	3C222	52	-4	0.79	37	1.67	1713.65
	282	17	298	49	317	52	2	3C237	45	-2	0.71	44	1.48	1713.62
	282	22	481	66	478	12	2	3C298	23	57	0.39	-55	-6.60	1714.01
811010	283	10	325	21	293	76	2	3C144-	113	5	1.15	15	1.93	1713.65
	283	14	361	59	361	14	2	3C161	98	-3	1.08	14	1.44	1713.69
	283	17	486	22	459	20	3	3C237	46	-2	0.72	43	2.16	1713.72
	283	22	312	91	338	54	2	3C298	23	58	0.39	-55	-7.86	1714.02
811011	284	10	432	17	413	21	2	3C144-	114	5	1.16	15	1.75	1713.75
	284	12	553	24	569	24	2	3C144	114	5	1.16	14	1.56	1713.79
	284	13	422	17	438	47	2	3C161	99	-3	1.09	13	1.35	1713.76
	284	15	456	50	394	144	2	3C216	74	12	0.96	17	1.07	1713.79
811012	285	4	630	35	597	49	2	3C409	108	17	1.13	-10	-0.38	1713.90
	285	10	383	18	384	18	2	3C144-	115	5	1.16	14	1.81	1713.76
	285	12	471	18	498	59	2	3C144	115	5	1.16	14	1.66	1713.80
	285	13	420	35	429	36	2	3C161	100	-3	1.09	14	1.40	1713.79
811013	286	10	302	14	311	25	2	3C144-	116	5	1.16	14	2.02	1713.74
	286	13	348	10	319	20	2	3C161	101	-3	1.10	13	1.47	1713.79
811014	287	1	355	28	381	61	2	3C368	74	17	0.96	-13	-1.23	1713.92
	287	4	677	23	732	24	2	3C409	106	17	1.12	-10	-0.48	1713.98
	287	5	654	89	680	22	2	3C446	135	8	1.23	-9	-0.04	1713.97
	287	13	556	37	563	45	3	3C161	102	-3	1.10	13	1.28	1713.91
	287	14	515	75	497	83	2	3C196	87	12	1.03	16	1.31	1713.90
811015	288	4	531	52	511	65	2	3C409	106	17	1.12	-10	-0.40	1713.99
	288	13	417	18	339	44	2	3C161	103	-3	1.11	12	1.37	1713.90
811016	289	9	546	56	413	19	2	3C144-	119	4	1.18	13	1.52	1713.97
	289	12	520	29	555	25	3	3C144	119	4	1.18	14	1.65	1713.96
	289	13	443	15	400	138	2	3C161	104	-3	1.11	13	1.41	1713.95
	289	17	388	15	434	29	3	3C237	52	-1	0.79	39	1.87	1713.92
811017	290	13	445	19	525	60	2	3C161	104	-3	1.11	13	1.43	1713.99
811018	291	12	412	*	467	*	2	3C144	121	4	1.18	13	1.77	1714.00
	291	13	384	*	478	*	2	3C161	105	-3	1.12	13	1.52	1713.99
811020	293	17	466	78	384	33	2	3C237	56	-1	0.83	34	1.84	1714.09
811021	294	9	655	*	670	*	4	3C144-	124	4	1.19	13	1.48	1714.17
	294	12	631	*	609	*	2	3C144	124	4	1.19	13	1.52	1714.17
	294	13	692	*	688	*	2	3C161	108	-3	1.13	12	1.25	1714.19

UT ON OCT. 30 1981

SOLAR WIND

Interplanetary Scintillations

OCTOBER 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	294	14	652	*	613	*	2	3C144+	124	4	1.19	13	1.46	1714.18
	294	15	300	*	315	*	2	3C216	83	11	1.01	16	1.22	1714.07
811022	295	9	358	19	484	18	2	3C144-	125	4	1.20	12	1.92	1714.11
	295	12	478	15	529	17	2	3C144	125	4	1.20	12	1.64	1714.17
	295	13	650	11	656	11	4	3C161	109	-3	1.13	13	1.30	1714.22
811023	296	9	506	31	523	59	2	3C144-	126	4	1.20	13	1.70	1714.21
	296	11	509	32	518	47	2	3C144	126	4	1.20	13	1.65	1714.21
811024	297	9	472	30	448	28	3	3C144-	127	4	1.20	12	1.66	1714.24
	297	11	419	15	456	15	3	3C144	127	4	1.20	13	1.85	1714.22
	297	15	308	45	319	27	2	3C216	85	11	1.02	17	1.38	1714.18
	297	16	432	24	383	19	2	3C237	60	0	0.87	30	1.68	1714.23
811025	298	9	300	22	297	61	2	3C144-	128	4	1.21	12	2.13	1714.17
	298	16	417	22	352	16	2	3C237	61	0	0.87	29	1.60	1714.27
811026	299	3	513	64	492	29	2	3C409	98	17	1.08	-10	-0.52	1714.39
	299	5	417	59	439	50	2	3C459	138	8	1.24	-8	0.39	1714.33
	299	11	400	25	412	26	2	3C144	129	3	1.21	11	1.79	1714.28
	299	16	406	44	393	13	2	3C237	62	0	0.88	28	1.55	1714.30
	299	17	273	37	269	14	2	3C273	27	8	0.45	64	1.06	1714.24
811027	300	4	344	21	347	45	2	3C446	122	7	1.19	-11	0.12	1714.34
	300	5	445	20	480	60	2	3C459	137	8	1.24	-9	0.29	1714.38
	300	16	324	37	400	43	2	3C237	63	0	0.89	27	1.38	1714.30
	300	18	300	18	249	15	2	3C273	28	8	0.47	62	1.37	1714.29
	300	20	487	57	434	57	2	3C295	65	27	0.91	12	0.50	1714.41
811028	301	5	475	26	503	12	2	3C459	136	8	1.23	-9	0.17	1714.43
	301	9	397	17	431	66	2	3C144-	131	3	1.22	11	1.83	1714.35
	301	11	524	35	524	37	2	3C144	131	3	1.22	11	1.60	1714.40
	301	12	433	69	420	13	2	3C161	114	-4	1.16	11	1.46	1714.38
	301	16	357	17	495	138	2	3C237	64	0	0.90	26	1.38	1714.36
811029	302	5	350	24	389	13	2	3C459	135	7	1.23	-10	0.44	1714.41
	302	9	374	15	403	100	2	3C144-	132	3	1.22	11	1.92	1714.37
	302	11	532	54	604	107	2	3C144	132	3	1.22	11	1.58	1714.44
	302	12	417	45	403	67	2	3C161	115	-4	1.16	10	1.45	1714.41
	302	16	512	30	478	16	2	3C237	65	0	0.91	25	1.52	1714.45
811030	303	11	394	14	461	21	2	3C144	133	3	1.22	11	1.87	1714.42
811031	304	16	252	32	311	13	2	3C237	67	0	0.92	24	1.18	1714.40
	304	17	331	28	330	44	2	3C273	31	6	0.52	59	1.73	1714.44

VMID IS A MEAN AND VPK IS A MAXIMUM VELOCITY IN THE IPS SCATTERING REGION.
THE REGION'S CENTROID IS SPECIFIED BY LAT, DIST, DLON.
LAG AND ROTATION NUMBER GIVE MAPPING TO EARTH AND SUN AT VMID.
* INDICATES NO ERROR AVAILABLE, SINCE ONLY TWO ANTENNAS WERE OPERATING.

PIONEER XII

OCTOBER 1981

DATE Oct '81	TIME (UT)	ESV (°)	U_{H+} (km/s)	N_{H+} (H^+/cc)	T_{H+} (x10^6 K)
1	0408	067.	357.	24.	0.078
2	0340		401.	45.8	.144
3	0441		402.	31.3	.171
4	0559		398.	22.4	.039
5	0528		419.	22.	.165
6	0531		354.	18.1	.173
7	0303		351.	16.7	.157
8	0328		368.	16.	.11
9	0031		820.	24.7	1.93*
10	0604		601.	23.1	.008
11	0427		439.	13.3	.026
12	0409		556.	8.6	.229
13	0401		1279.	1.	.873**
14	0457		654.	6.2	.009
15	0317	058.	524.	13.6	.013
16	0358		525.	5.6	.353
17	0313		440.	5.	.053
18	0409		342.	12.3	.05
19	0447		382.	39.6	.372
20	0435		502.	20.	.023
21	0450		391.	50.2	.032
22	0414		429.	58.6	.083
23	0423		518.	15.	.505
24	0453		457.	18.4	.164
25	0652		---	30.1	---
26	0435		321.	21.5	.036
27	0448		312.	26.7	.076
28	0457		298.	31.3	.034
29	0433		453.	21.1	.153
30	0507		398.	17.8	.069
31	0941		362.	18.	.117

* Highest Solar Wind temperature ever recorded by this consultant in the last ten years-approximately 2 million degrees.

**Solar Wind velocity approaching 1300 km/s.

INFERRED IP MAGNETIC FIELD

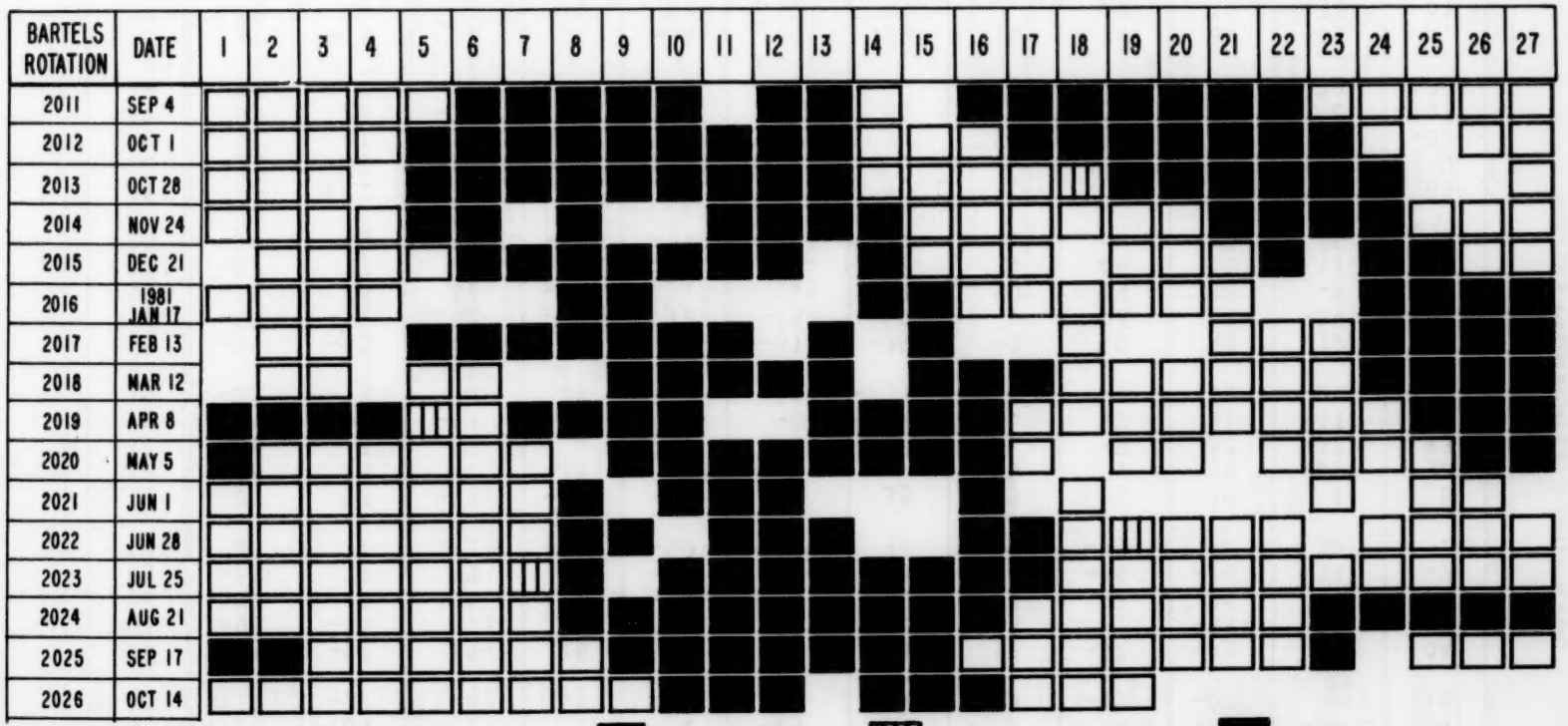
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
2007	MAY 24			AT		AT		*	*	-		-	-	TA			AT				*	TA			-	TA			TA			-	TA	
2008	JUN 20			-			AT			-	-				-	-									TA			TA			TA		
2009	JUL 17		-	AT		-						-			TA	TA		-	AT	AT		-			-		-		-	A*	-	-	
2010	AUG 13		AT					-	AT	-						-		-	AT					TA		-		A*				
2011	SEP 9							TA	AT						TA	TA										TA						
2012	OCT 6							*		TA	TA		AT	A*		A*						TA			TA							
2013	NOV 2	AT					TA	TA				AT	A*									TA	-	AT			TA					
2014	NOV 29					-					-				TA		TA	TA		AT		-		AT					-	TA			
2015	DEC 26										-					-	TA	-	TA	-		-		-		-	AT		AT		-	-	-	-
2016	JAN 22 1981	TA	-								AT	TA				TA						-					AT						TA	
2017	FEB 18				AT		TA							TA		TA			*									AT		TA		TA	
2018	MAR 17							AT							-					TA			AT		-	-			TA		AT		
2019	APR 13	TA		-	-						-				TA					*	AT	-			-		AT		-		-		
2020	MAY 10	-	-	-	-	TA	AT		TA			-		TA									*		*								
2021	JUN 6			*							AT				TA			AT			-	-	-	-	-		-		-		-		-
2022	JUL 3		-		-		-		-	-	-		-	-	-	-	-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
2023	JUL 30		-	-	-	-	-		-	-	-		-		-	-	-	-	-	TA	-	TA	-	-	-		-		-	AT	-	-	-	
2024	AUG 26	-	-		-		-	TA	-	TA	-		-		-	TA	-		-		-		-		-	TA	-		-		-		-	
2025	SEP 22		-		-		-		-		-		-		-	AT	-	TA	-		-		-	TA	-	AT	-	TA	-	AT	-	TA	-	TA	-	TA	-
2026	OCT 19	AT	-	TA	-	TA	-		-		-		-		-	TA	-	TA	-		-	TA	-											

▒ = definitely towards the sun □ = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day. The Thule magnetometer ceased operating in August 1981.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: ☐ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT

No box visible indicates no data available for that day.

NOTE: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

	1980		1981									
day	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
01	-41	-82	-111	33	.	75	2	16	53	-49	-134	-27
02	-94	.	.	20	54	82	-51	21	49	.	-87	11
03	-120	.	-33	64	.	31	-66	17	41	-72	-56	70
04	-123	-100	7	72	.	-23	-56	6	14	-80	-21	104
05	-111	-97	46	58	102	-67	-24	28	-17	-67	-7	115
06	-84	-67	66	28	81	-85	23	33	-62	-48	11	104
07	-99	-16	.	.	39	-97	25	3	.	-33	26	28
08	-107	41	116	.	-11	-76	36	-27	-93	-26	30	25
09	-61	71	49	-6	-28	-40	45	.	-56	-19	33	-7
10	28	77	13	-24	-50	-28	49	-96	-43	-7	32	.
11	27	57	-29	-42	-58	-7	35	-75	.	16	4	8
12	38	28	.	-26	.	0	.	-58	.	58	-29	32
13	26	3	-39	.	18	13	-76	.	-9	68	-47	43
14	-1	-52	-13	15	35	-6	-147	.	-7	81	-37	64
15	-21	-93	8	24	.	-29	-131	.	9	68	-24	103
16	-50	-86	18	.	37	-61	-94	-3	0	49	-32	115
17	-68	-51	62	-8	12	-73	-50	.	38	49	-24	167
18	-81	26	67	-19	.	.	-47	50	59	42	-8	218
19	-63	37	67	-62	.	.	-53	.	66	16	11	193
20	-24	39	37	-65	-41	-85	-41	.	.	12	85	115
21	.	.	.	-76	-91	-79	13	.	108	31	135	65
22	.	51	.	-70	-119	-86	.	.	107	38	124	9
23	97	41	.	-68	-120	-51	72	59	73	52	60	-62
24	80	28	-52	.	-102	5	61	.	34	67	6	-107
25	70	7	-87	-75	.	43	.	29	29	92	-79	-128
26	31	-13	.	.	-88	70	126	18	34	64	-115	.
27	28	-20	.	-8	-52	67	109	.	28	15	-138	-61
28	-3	-42	.	.	-20	84	50	44	33	-12	-144	-60
29	-26	-65	.		31	122	24	62	43	-64	-121	-19
30	.	-88	-59		45	61	-9	50	38	-84	-75	67
31		-95	-4		55		-4		1	-143		87

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

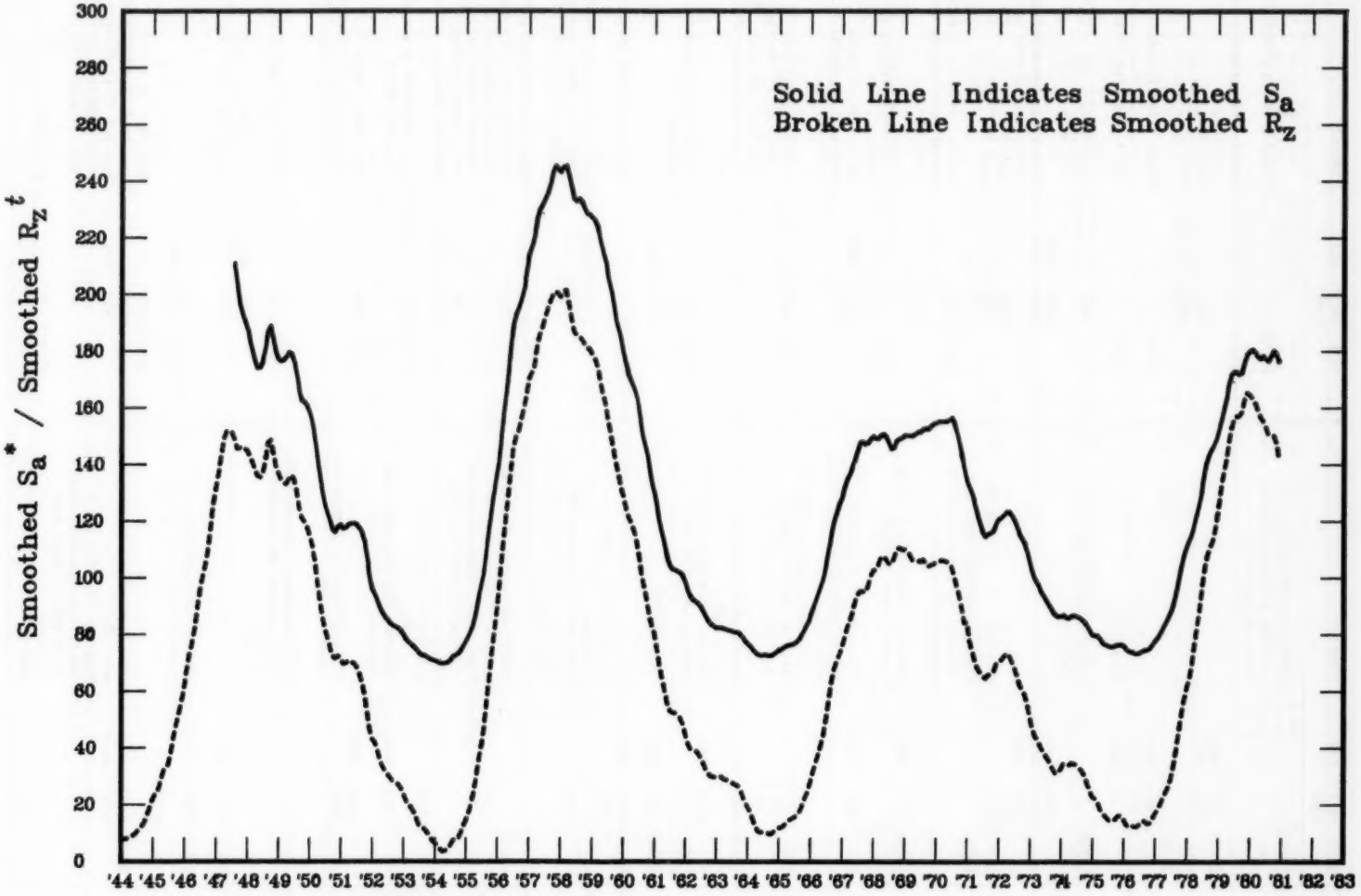
BOULDER GEOMAGNETIC SUBSTORM LOG

OCTOBER 1981

DATE	ONSET TIME	DIR	COMMENTS
10/01			Field intermittently unsettled with no distinctive SS activity.
10/02	1325	West	
	2022	SSC	
10/03			
	0705	West	
	1025	East	
	1310	West	Strong SS
10/04			Field intermittently unsettled.
	0440	East	
	1155	West	
	1255	West	
	1635		
10/05			Field unsettled 0600-1500 UT with no significant SS activity.
10/06	1150	West	Several injections with recovery near 1430 UT.
10/07	0840	East	Slow expansion westward with onset at College at 0915 UT. Field active after 1100 UT with no distinctive SS activity.
10/08	0455		Localized SS vicinity Lynn Lake.
	0810	West	Several injections with recovery near 1300 UT.
10/09	1010	West	Moderate SS
10/10	0730	West	
	1010		Localized SS vicinity College.
	1325		Slow onset, numerous injections with recovery near 1930 UT.
10/11			Field very active 0200-2000 UT.
	0530	≈ center	Slow onset, sharp injection into existing SS at 0605 UT.
	0830		Localized SS vicinity College.
	1030	West	Moderate SS, slow expansion eastward.
	1250	West	
	1620		SS localized Ft. Simpson to Norman Wells.
10/12			Field unsetled through 1200 UT and quiet the balance of day.
10/13	2241	SSC	
10/14	0155	East	Strong ring current established.
	2130		
10/15	0750	West	
	0855	West	Weak SS
	1255	West	Moderate SS, slow onset with slow expansion northward and eastward from College.
	1600		Weak SS
10/16			Field slightly unsettled.
10/17			Field intermittently unsettled.
	0800		Weak SS
	0905		Weak SS
10/18			Field slightly unsettled.
10/19			Field unsettled after 0400 UT.
	0650		Localized SS vicinity Ft. Simpson.
	0745	West	
	1050	West	Slow expansion northward and eastward from College.
	1225		Weak SS
	1415		Weak SS
10/20	1030		Gradual onset to magstorm conditions lasting through 2100 UT.
10/21			Field unsettled through 1800 UT.
	0835	West	Several injections.
	1010		Localized SS vicinity College.
10/22	0520		Positive impulse H-component all mid/low latitude stations. Magstorm conditions 0800-1930 UT.
10/23	0650		Localized SS vicinity College.
	0745	West	
10/24			Field unsettled after 1030 UT.
	1030	West	Moderate SS, slow onset, numerous injections with recovery near 1330 UT.
10/25	0410	West	Sharp onset Norman Wells.
	0610		Pronounced positive bay in the D-component at Boulder-Tucson only.
	0720	West	Sharp onset College.
	1135	West	Moderate SS
10/26	0850	≈ center	Slow expansion westward from Ft. Smith.
10/27	1520		Slow onset, weak SS, several minor injections with recovery near 1730 UT.
10/28			Field unsettled after 0700 UT.
	0715	West	Several minor injections.
	0950		Localized SS College to Ft. Yukon.
10/29	0920	West	
10/30	0940		Weak SS
	1340		Localized SS at College.
	1415	West	Moderate SS at College, slow expansion northward and eastward from College.
10/31			Quiet day

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

Superposition of Zürich Sunspot Numbers and Ottawa 10.7 cm Flux
January 1944 – December 1980



* Solar Flux Units (10^{-22} W/m^2 Hz) Adjusted to 1 A.U., Series D.
t Reduced Zürich Sunspot Numbers.

SEPTEMBER 1981 DATA

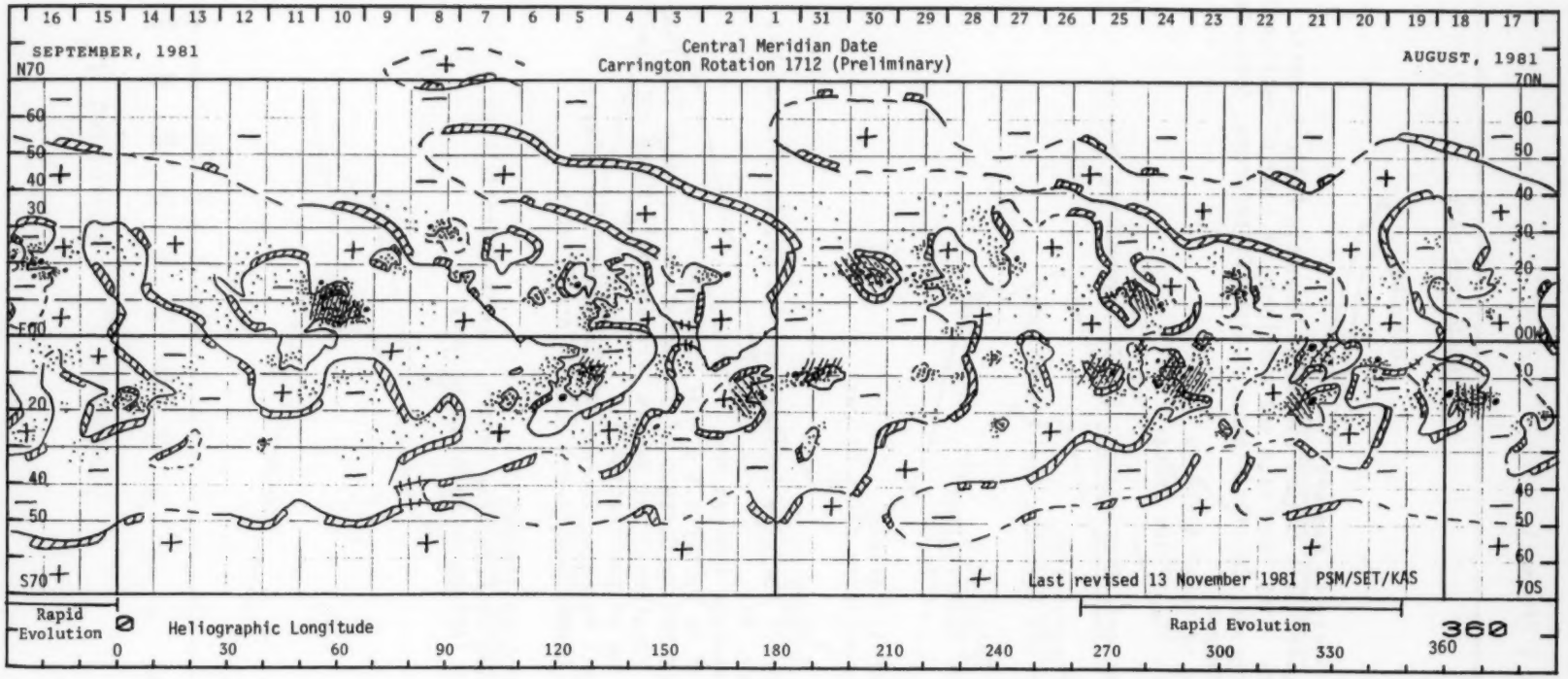
Contents

	Page
Daily Solar Activity Centers	
H-alpha Synoptic Charts and Solar Magnetic Field Synoptic Charts (Kitt Peak data not available at time of publication.)	50-52
Magnetograms, Calcium Plages, H-alpha Filtergrams, Sunspots, and Corona	54-113
Regions of Solar Activity	114-128
Daily Calcium Plage Index	128
Sudden Ionospheric Disturbances (NGSDC keypunching delays)	
Spacecraft Observations	
Pioneer XII Magnetic Field Magnitudes	129
Solar Radio Emission	
Spectral Observations	130-149
Cosmic Rays	
Chart of Variations	150
Neutron Monitors Daily Values	151
Geomagnetic Indices	
Geomagnetic Activity Indices (Kp, Ap, Cp, Km, Am, aa, Kn, An, Ks, As)	152
Daily Average Indices Ap	153
Chart of Kp by Bartels 27-day Rotation	154
Chart of Dst by Bartels 27-day Rotation (See page 178.)	
Hourly Equatorial Dst Values (Provisional) (Data not available at time of publication.)	
Principal Magnetic Storms (NGSDC keypunching delays)	
Sudden Commencements and Solar Flare Effects	155
Radio Propagation Indices	
Transmission Frequency Ranges - North Atlantic Path	156-157
Quality Indices on Paths to Germany	158

t Reduced Zürich Sunspot Numbers.

Hα SYNOPTIC CHART

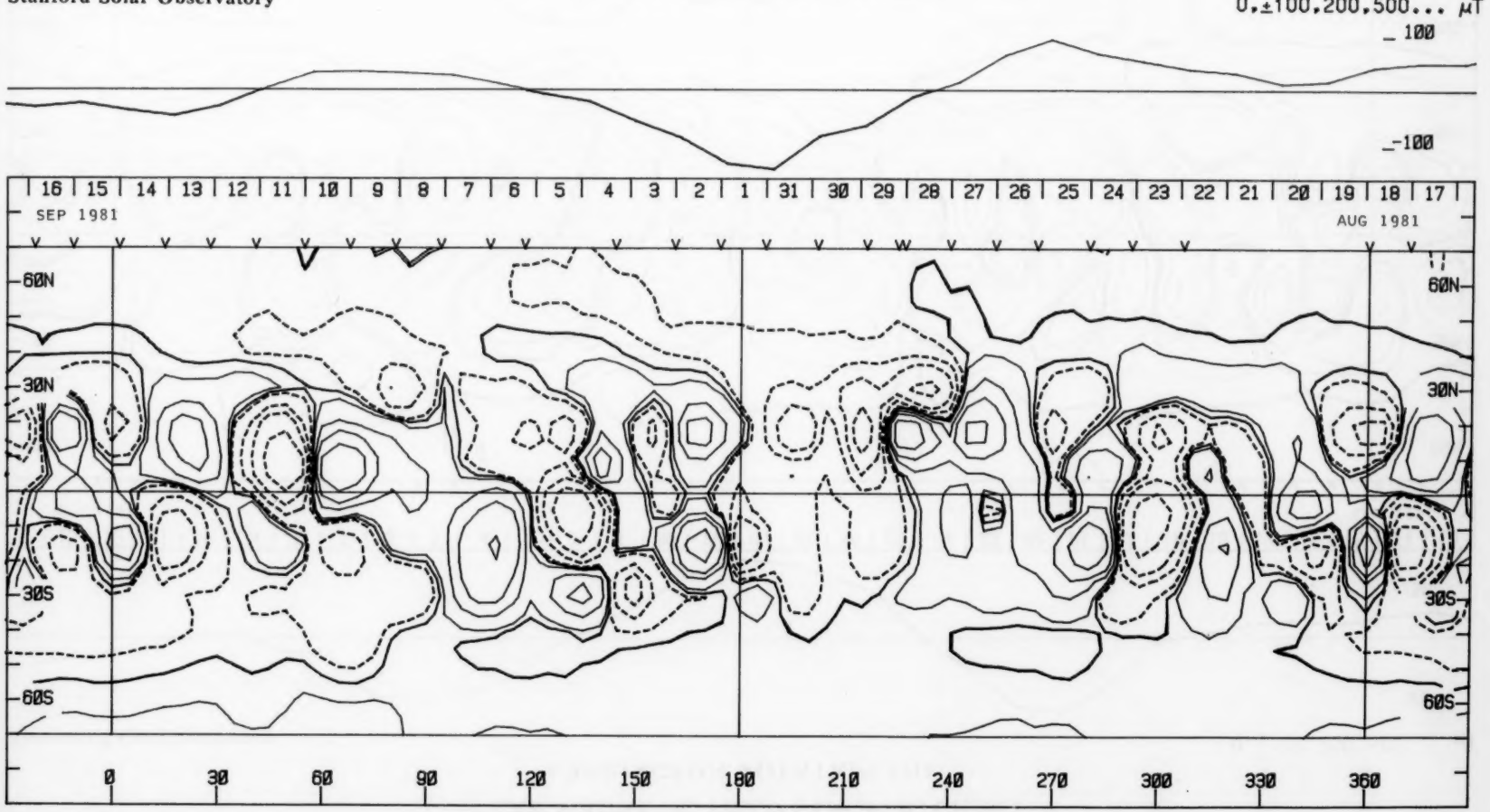
CARRINGTON ROTATION 1712 (PRELIMINARY)



SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION 1712

Stanford Solar Observatory

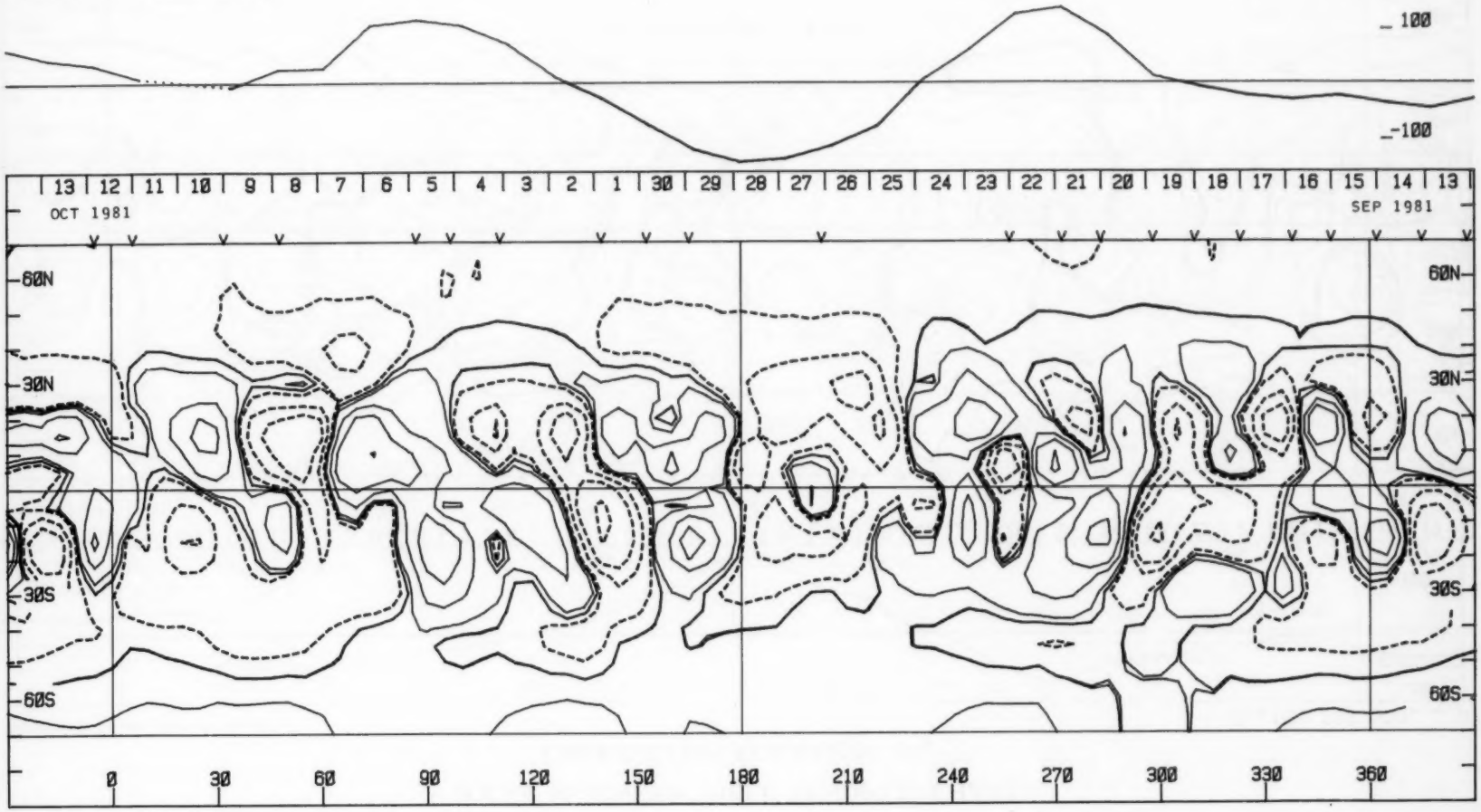


SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION 1713

Stanford Solar Observatory

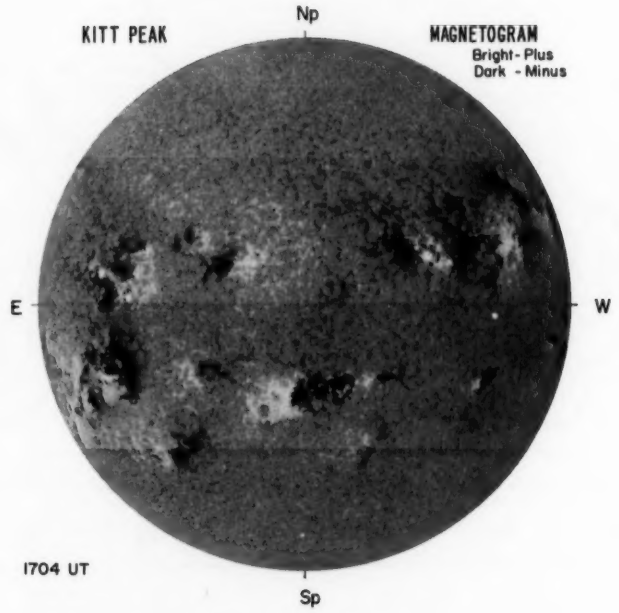
0,±100,200,500... μT

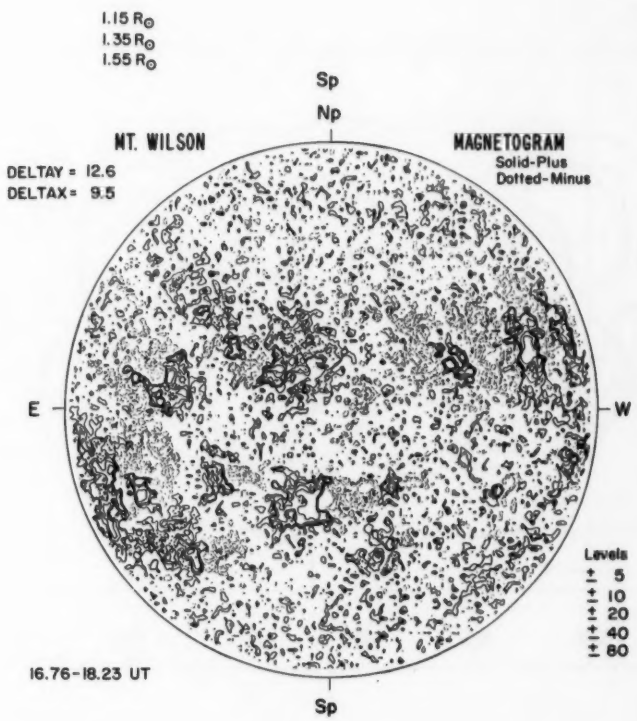


SEPTEMBER 1, 1981 (P= 21.07, B_o= 7.20, L_o= 185.74)

SACRAMENTO PEAK Np CORONA
5303 Å

E NO DATA SEPTEMBER 1, 3, 5, 7, 8, 9, 22, 23 W

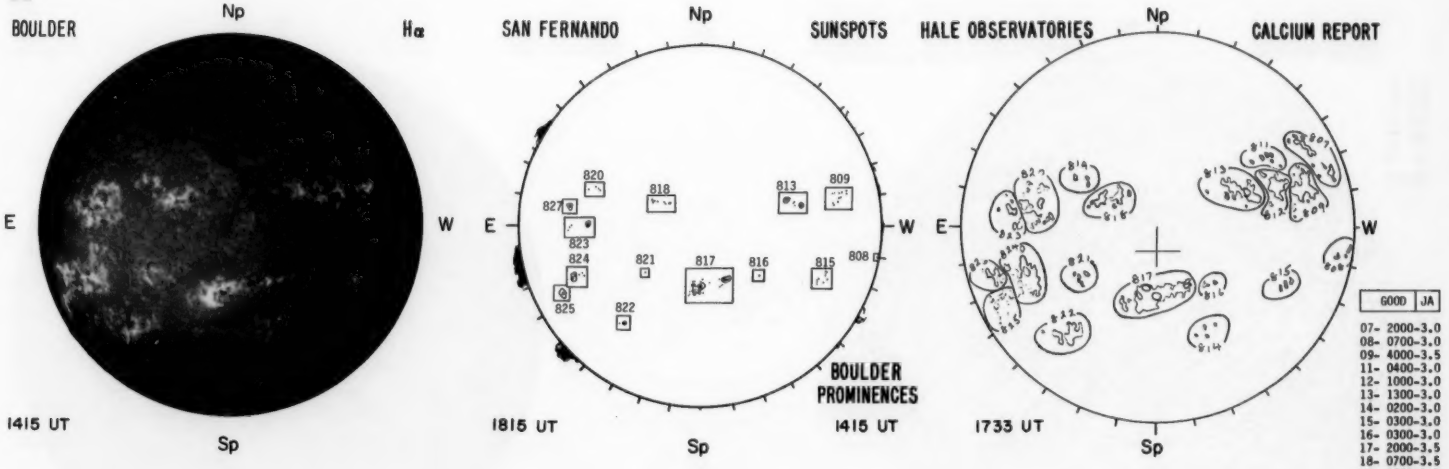


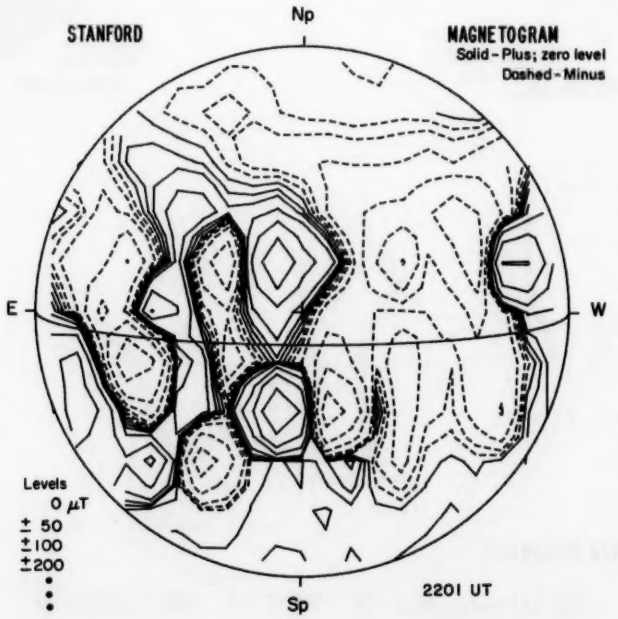


01

BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

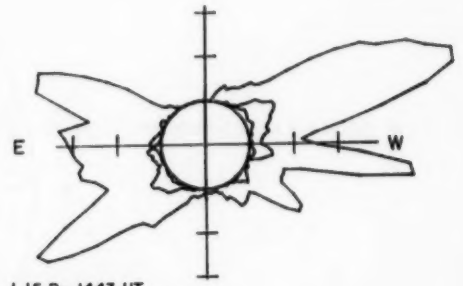
01


BOULDER
Np
Hα
E
W
Sp
1415 UT
SAN FERNANDO
Np
SUNSPOTS
820
818
813
809
827
823
824
821
817
816
815
808
825
822
E
W
Sp
1815 UT
BOULDER PROMINENCES
1415 UT
HALE OBSERVATORIES
Np
CALCIUM REPORT
E
W
Sp
1733 UT
GOOD | JA
07- 2000-3.0
08- 0700-3.0
09- 4000-3.5
11- 0400-3.0
12- 1000-3.0
13- 1300-3.0
14- 0200-3.0
15- 0300-3.0
16- 0300-3.0
17- 2000-3.5
18- 0700-3.5
19- 0400-3.0
20- 2000-3.5
21- 0300-3.0
22- 1400-3.5
23- 0700-3.0
24- 2400-3.5
25- 1500-3.5
26- 1100-3.0


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
Sp
2201 UT

SEPTEMBER 2, 1981 (P= 21.32, B_o = 7.21, L_o = 172.53)

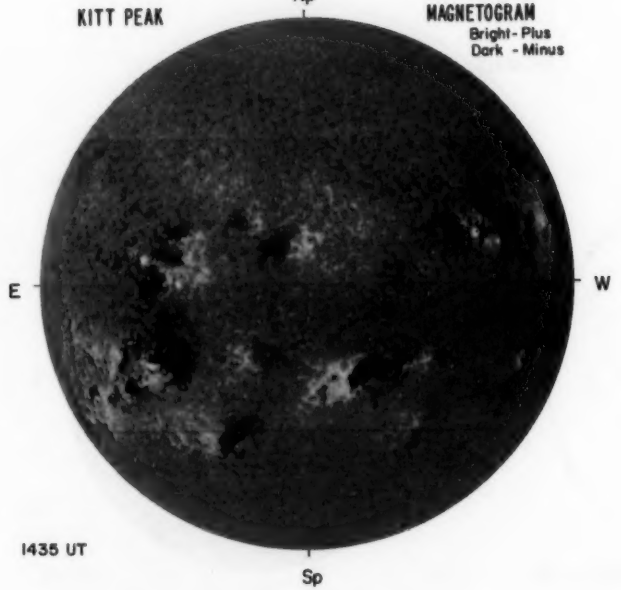
SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1443 UT
1.35 $R_\odot$ 1423 UT
1.55 $R_\odot$ 1433 UT

Sp

KITT PEAK Np MAGNETOGRAM Bright-Plus Dark - Minus



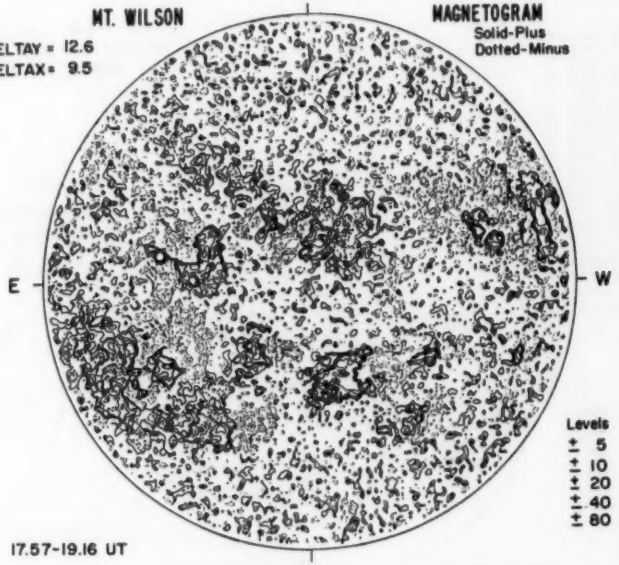
1435 UT

Sp

Np

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5



17.57-19.16 UT

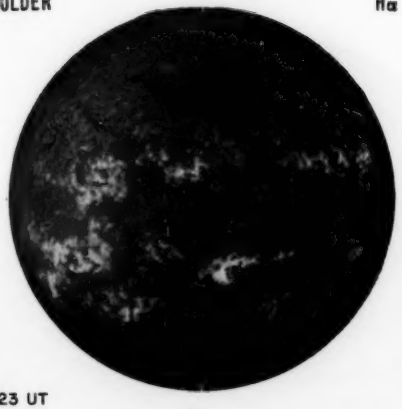
Sp

02

Np Np Np

02

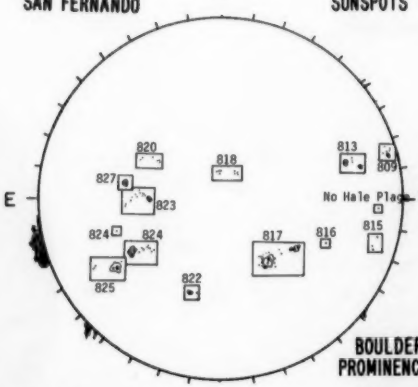
BOULDER



1423 UT

Hα

SAN FERNANDO



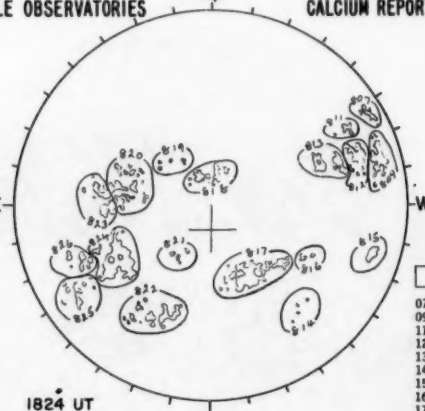
2055 UT

SUNSPOTS

BOULDER PROMINENCES

1423 UT

HALE OBSERVATORIES



1824 UT

CALCIUM REPORT

GOOD	JA

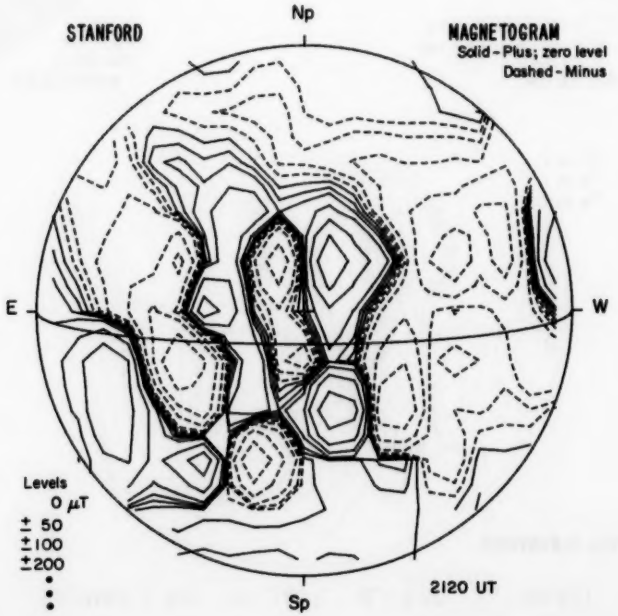
07- 0800-3.0
09- 3000-3.5
11- 0400-3.0
12- 1000-3.0
13- 1300-3.5
14- 0200-3.0
15- 0700-3.0
16- 0300-3.0
17- 2000-3.5
18- 0700-3.0
19- 0200-3.0
20- 2000-3.5
21- 0300-3.0
22- 1200-3.0
23- 1300-3.0
24- 2800-3.5
25- 1100-3.5
26- 0900-3.0

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



2120 UT

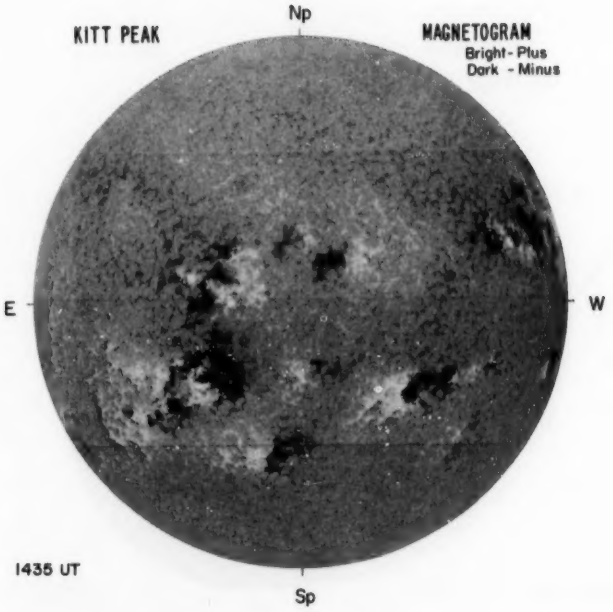
SEPTEMBER 3, 1981 (P= 21.57, B_o = 7.22, L_o = 159.32)

SACRAMENTO PEAK Np CORONA 5303 Å

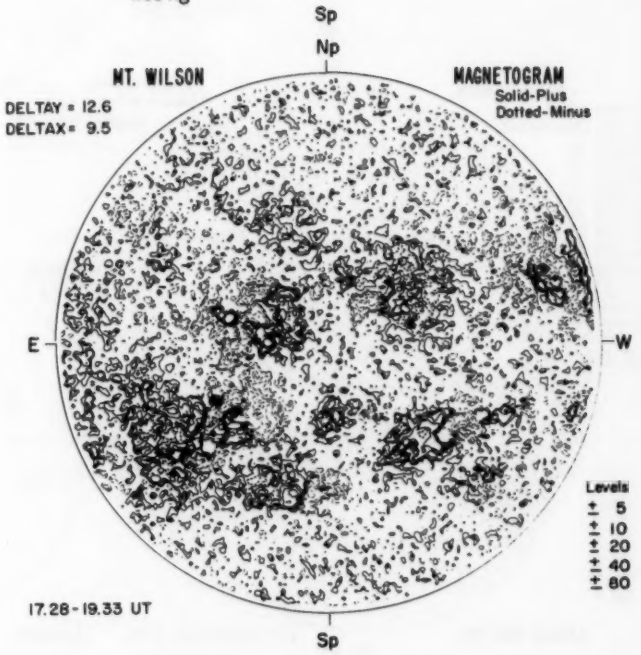
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK



MT. WILSON



03

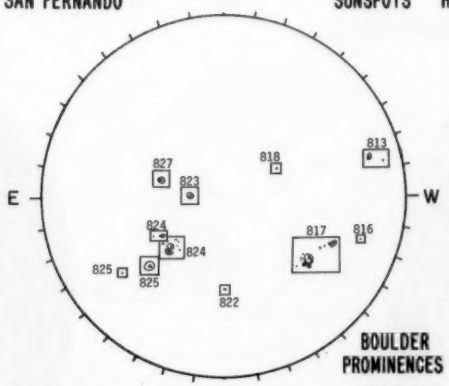
SACRAMENTO PEAK Np H- SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM RECORD

03

SACRAMENTO PEAK Hα

1410 UT

SAN FERNANDO



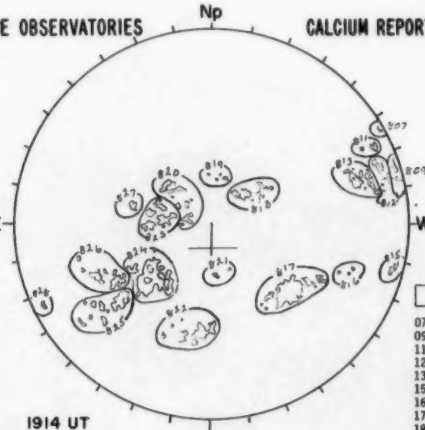
2100 UT

SUNSPOTS

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES



1914 UT

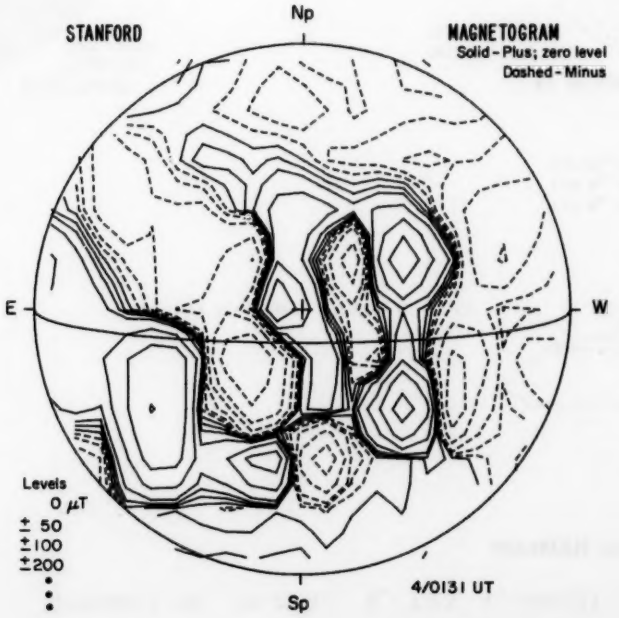
CALCIUM REPORT

GOOD	JA

07- 0200-3.0
09- 2500-3.5
11- 0400-3.0
12- 1600-3.0
13- 1400-3.0
15- 0300-3.0
16- 0200-3.0
17- 2900-3.5
18- 0900-3.0
19- 0200-2.5
20- 1100-3.0
21- 0200-3.0
22- 1400-3.0
23- 1200-3.0
24- 2800-3.5
25- 1700-3.0
26- 1000-3.0
27- 0300-3.0
28- 0200-3.0

STANFORD MAGNETOGRAM

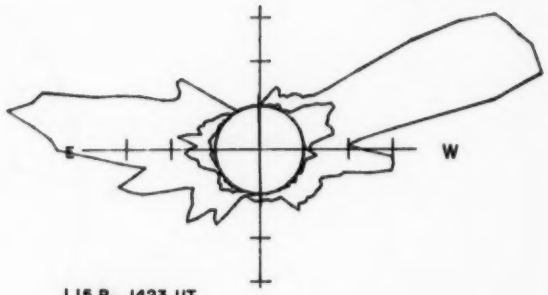
Solid - Plus; zero level
Dashed - Minus



4/0131 UT

SEPTEMBER 4, 1981 (P= 21.81, B_o = 7.23, L_o = 146.12)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1423 UT
1.35 $R_\odot$ 1431 UT
1.55 $R_\odot$ 1440 UT

Sp

KITT PEAK Np MAGNETOGRAM Bright - Plus Dark - Minus

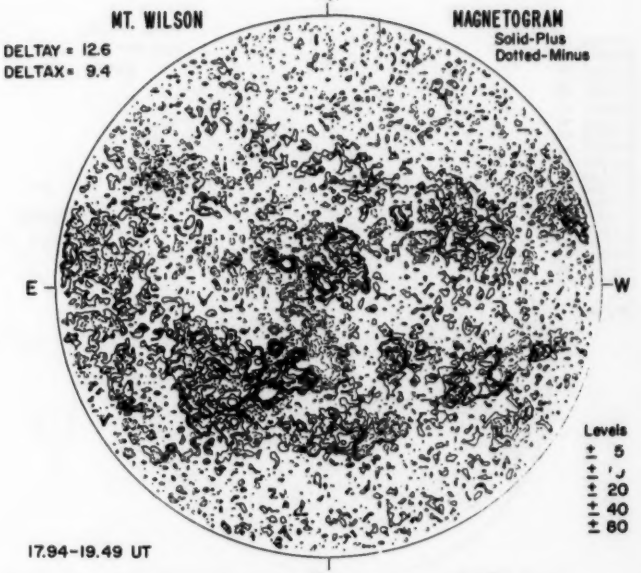
1412 UT

Sp

Np

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.6
DELTAX = 9.4



17.94-19.49 UT

Sp

04

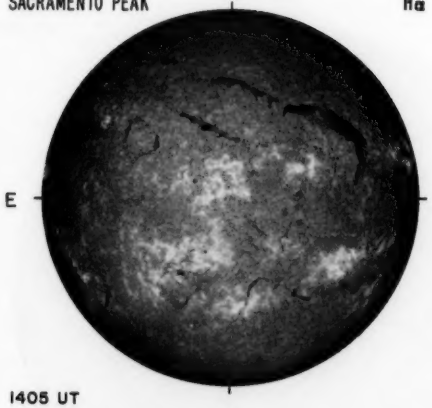
SACRAMENTO PEAK Np

SAN FERNANDO Np

SUNSPOTS HALE OBSERVATORIES Np

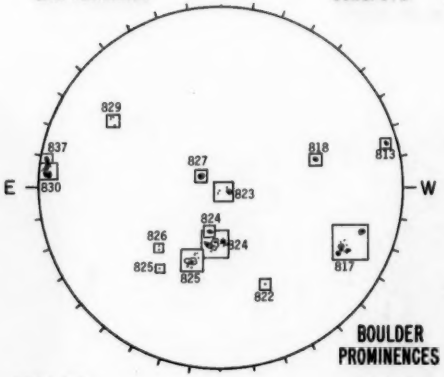
04

SACRAMENTO PEAK Hα



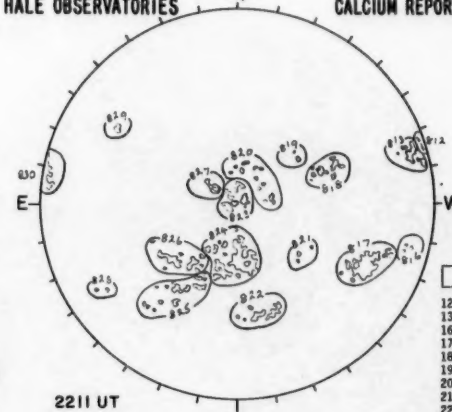
1405 UT

SAN FERNANDO SUNSPOTS



2345 UT

HALE OBSERVATORIES CALCIUM REPORT



2211 UT

	GOOD	JA
12-	0300-2.5	
13-	1300-3.0	
16-	0200-2.5	
17-	2800-4.0	
18-	0800-3.0	
19-	0100-3.0	
20-	0700-3.0	
21-	0200-2.5	
22-	0800-3.5	
23-	1000-3.5	
24-	3100-3.5	
25-	1300-3.0	
26-	1100-3.0	
27-	0300-2.5	
28-	0200-3.0	
29-	0300-2.5	
30-	2700-3.0	

BOULDER PROMINENCES

NO DATA

STANFORD MAGNETOGRAM

Np

Solid - Plus; zero level
Dashed - Minus

E NO DATA SEPTEMBER 4, 23, 24, 25, 27, 28 W

Levels
0 μT
± 50
±100
±200
•
•

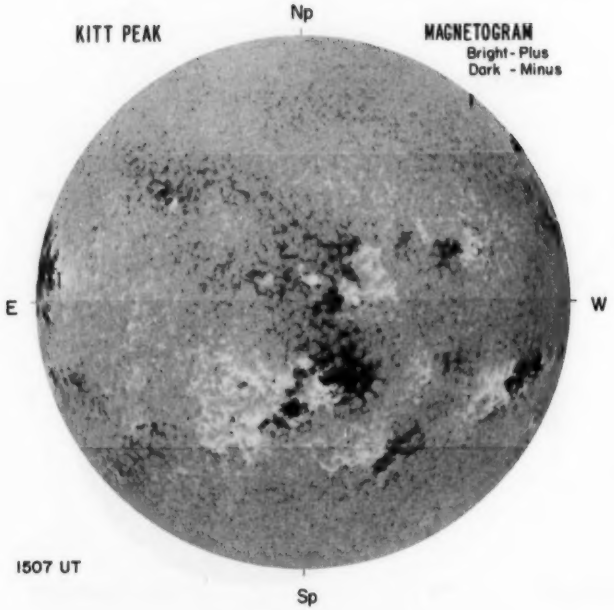
Sp

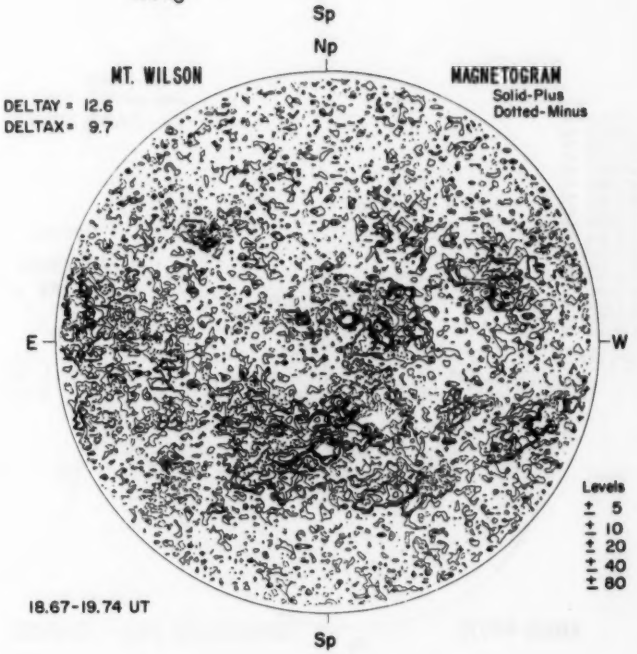
SEPTEMBER 5, 1981 (P= 22.05, B_o = 7.24, L_o = 132.91)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

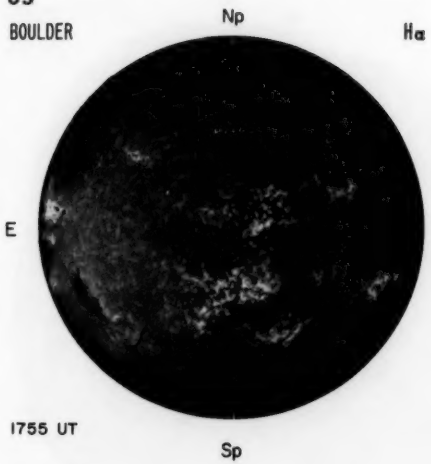


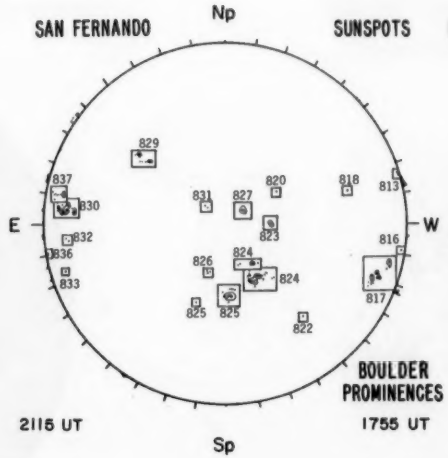


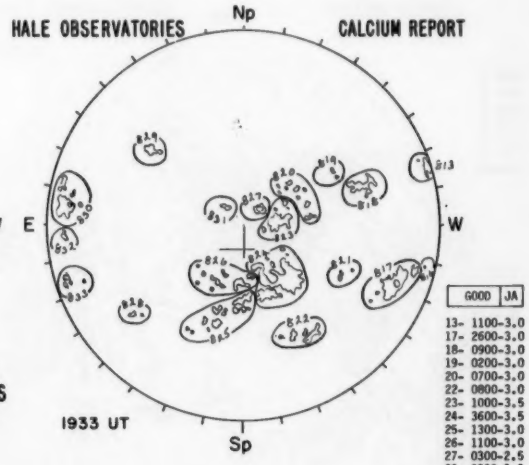
05

Np Np Np

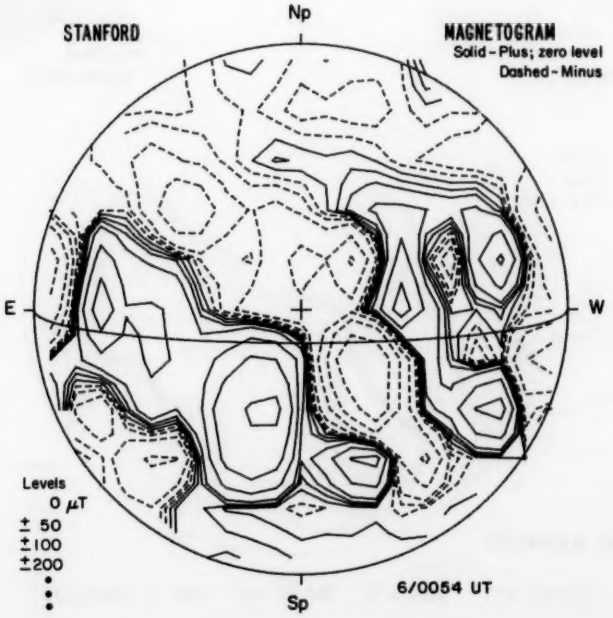
05





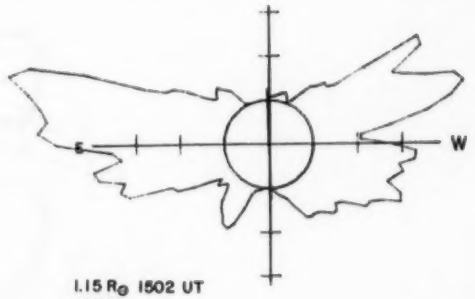


GOOD	JA
13-	1100-3.0
17-	2600-3.0
18-	0900-3.0
19-	0200-3.0
20-	0700-3.0
22-	0800-3.0
23-	1000-3.5
24-	3600-3.5
25-	1300-3.0
26-	1100-3.0
27-	0300-2.5
28-	0200-3.0
29-	0500-3.0
30-	1700-4.0
32-	0200-3.0
33-	0400-2.5



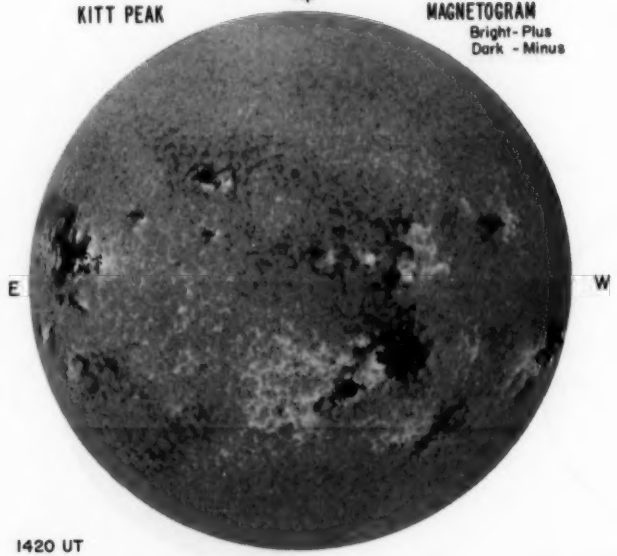
SEPTEMBER 6, 1981 (P= 22.28, B_o = 7.24, L_o = 119.70)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1502 UT
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK Np MAGNETOGRAM Bright - Plus Dark - Minus

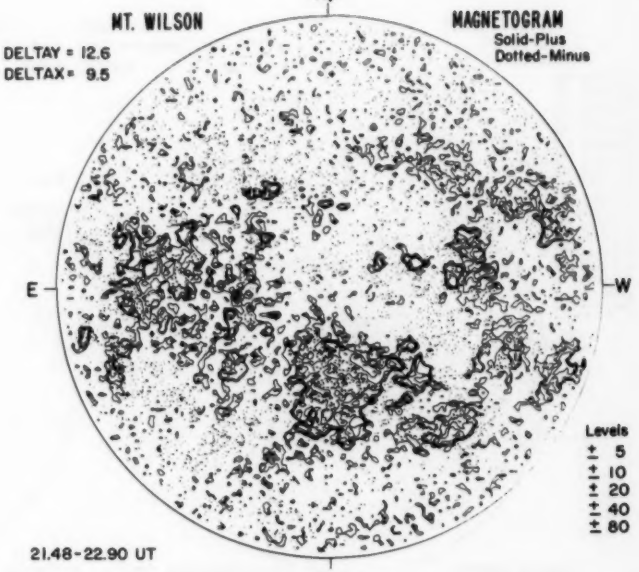


1420 UT

Sp

Sp Np MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5



21.48-22.90 UT

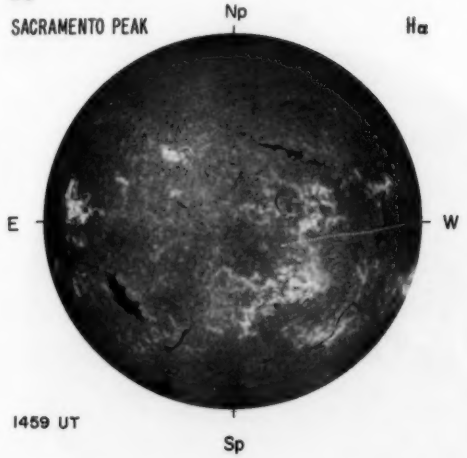
Sp

06

SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

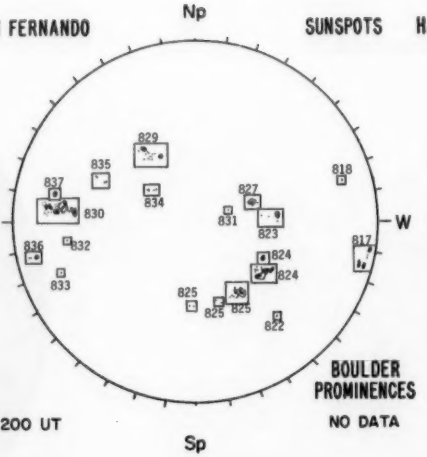
06

SACRAMENTO PEAK Hα



1459 UT

SAN FERNANDO SUNSPOTS

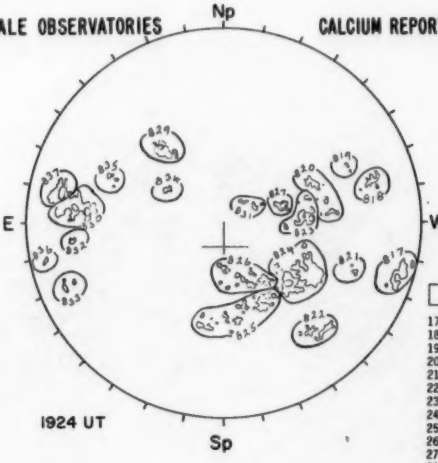


2200 UT

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES CALCIUM REPORT



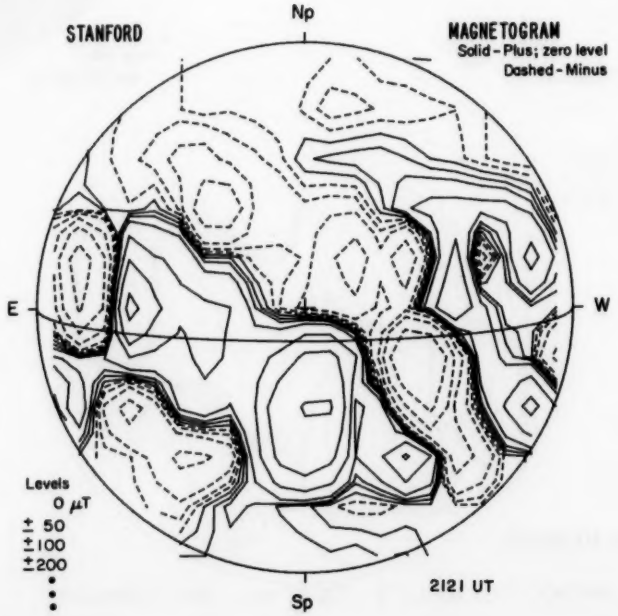
1924 UT

GOOD	JA

17- 2100-3.5
18- 0700-3.0
19- 0100-2.5
20- 0700-3.0
21- 0200-2.5
22- 1000-3.0
23- 0900-3.5
24- 3700-3.5
25- 1800-3.5
26- 1300-3.0
27- 0300-2.5
29- 0900-3.5
30- 2300-4.0
31- 0300-2.5
32- 0200-3.0
33- 0400-2.5
34- 0200-3.0
35- 0200-3.0
36- 0200-3.0
37- 1200-4.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



2121 UT

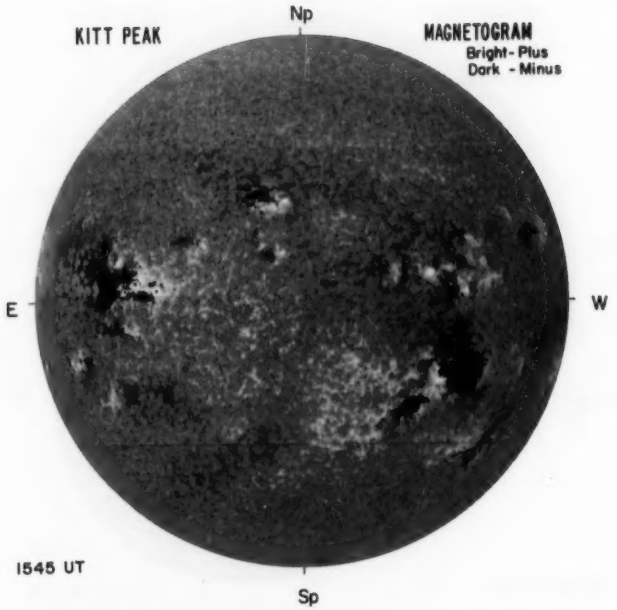
SEPTEMBER 7, 1981 (P= 22.50, B_o = 7.25, L_o = 106.49)

SACRAMENTO PEAK Np CORONA 5303 Å

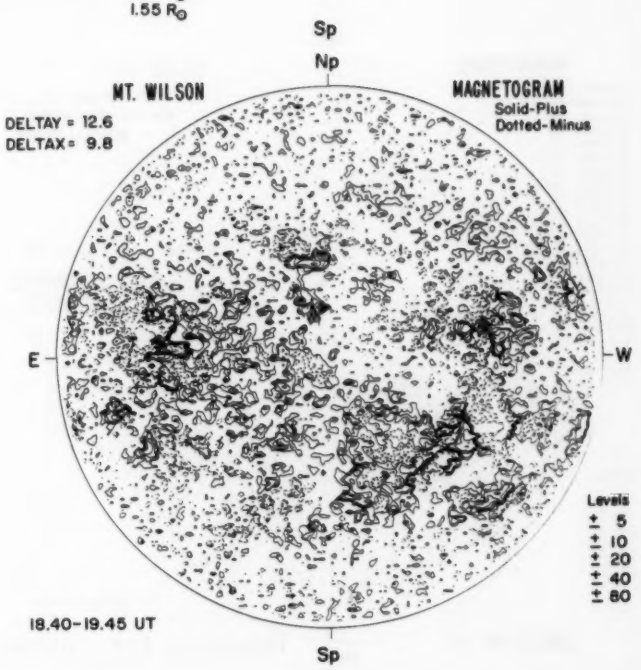
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK



MT. WILSON



07

BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

07

BOULDER

Np

Hα

NO DATA

E

W

Sp

SAN FERNANDO

Np

SUNSPOTS

829
837
835
834
827
818
823
830
832
824
817
836
824
825
825
822

E

W

2315 UT

Sp

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES

Np

CALCIUM REPORT

E

W

1945 UT

Sp

GOOD	JA

17- 0900-3.5
18- 0600-3.0
20- 0700-3.0
22- 1000-3.0
23- 0900-3.0
24- 3600-3.5
25- 2000-3.5
26- 1200-3.0
27- 0300-2.5
29- 1100-3.5
30- 4100-4.0
32- 0300-3.0
33- 0600-3.0
34- 0300-3.0
36- 0400-4.0
37- 1100-3.5
38- 0400-2.5
39- 0200-3.0

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

W

Levels

0 μT

± 50

±100

±200

2219 UT

Sp

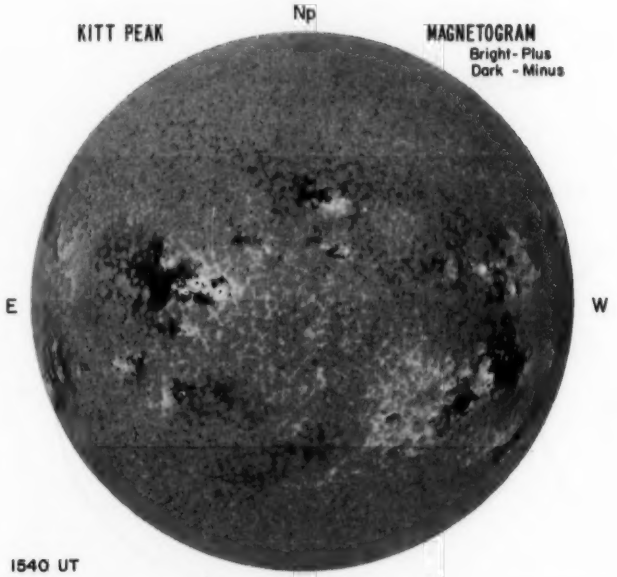
SEPTEMBER 8, 1981 (P= 22.72, B_o = 7.25, L_o = 93.29)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

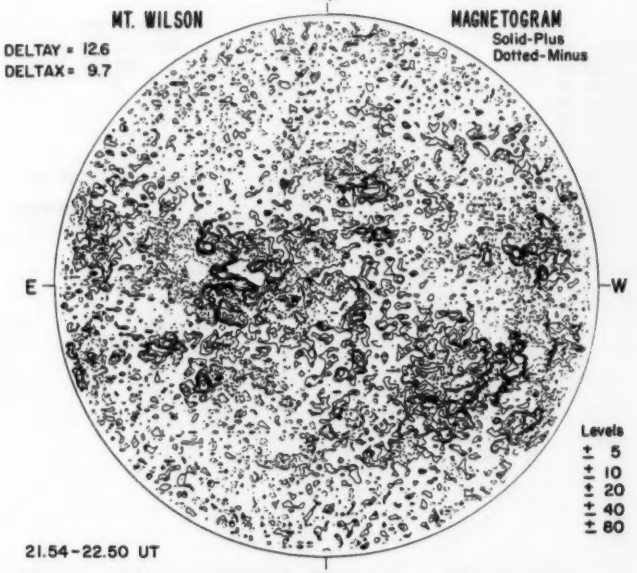
KITT PEAK Np MAGNETOGRAM Bright-Plus Dark-Minus



1540 UT

Sp Np MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.6
DELTAX = 9.7



21.54-22.50 UT

08

BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

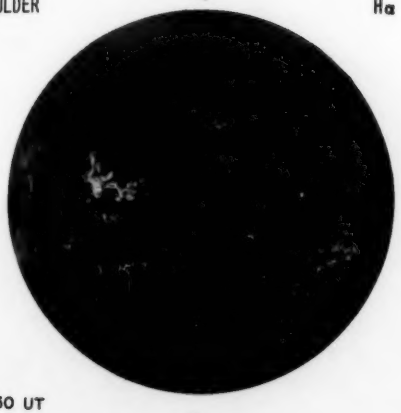
Sp

Sp

08

BOULDER

Np



E W

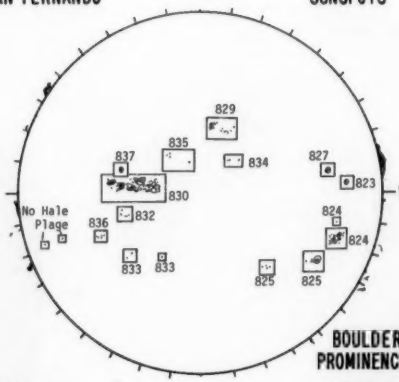
1550 UT

Sp

Hα

SAN FERNANDO

Np



E W E

2210 UT

Sp

SUNSPOTS

HALE OBSERVATORIES

Np

BOULDER PROMINENCES

1550 UT

Sp

CALCIUM REPORT

NO DATA SEPTEMBER 8, 9, 29

W

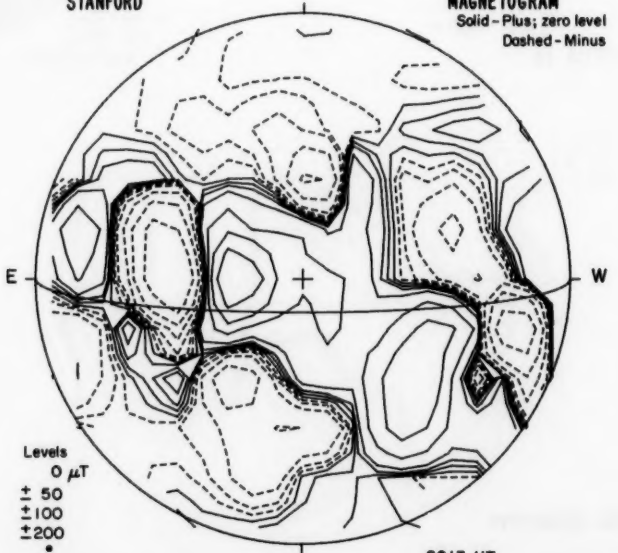
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

• • •

Sp

2213 UT

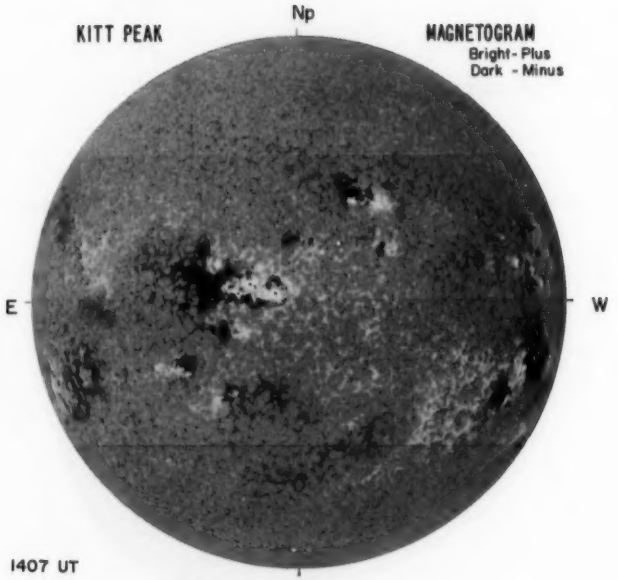
SEPTEMBER 9, 1981 (P= 22.93, B_o= 7.25, L_o= 80.08)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

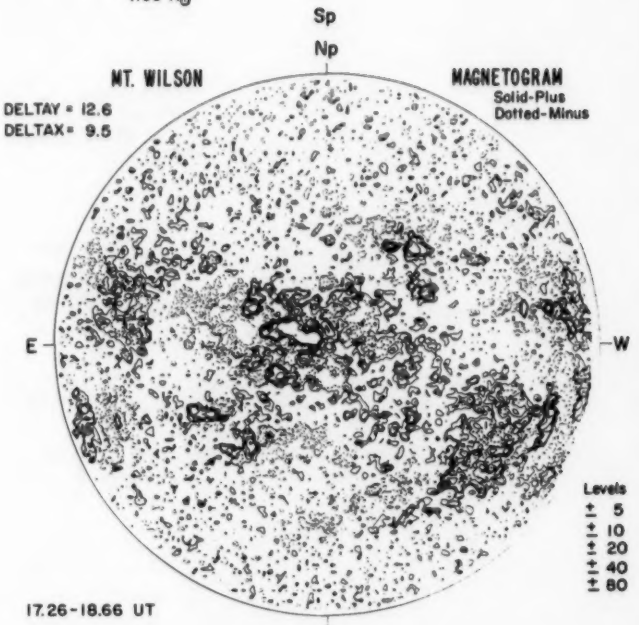
1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1407 UT

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.5



Levels
± 5
± 10
± 20
± 40
± 80

17.26-18.66 UT

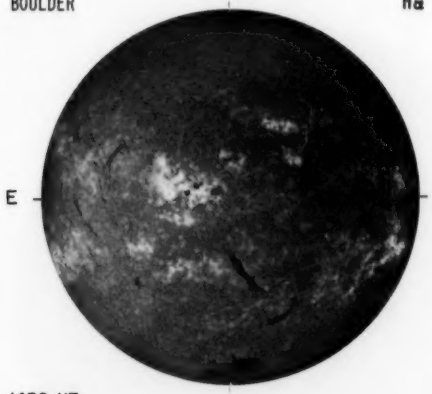
09

BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

09

BOULDER

Np



E W

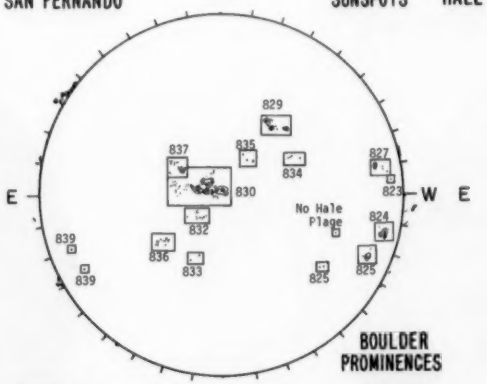
Sp

1430 UT

Hα

SAN FERNANDO

Np



E W E

Sp

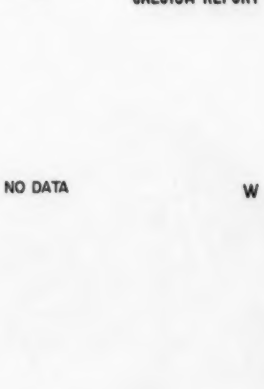
2250 UT

SUNSPOTS

HALE OBSERVATORIES

BOULDER PROMINENCES

Np



W E

Sp

1430 UT

CALCIUM REPORT

Np

W

Sp

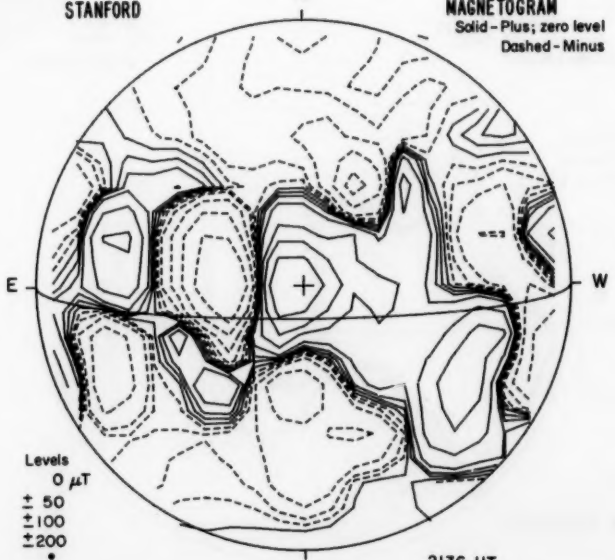
STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Np



E W

Levels

0 μT

± 50

±100

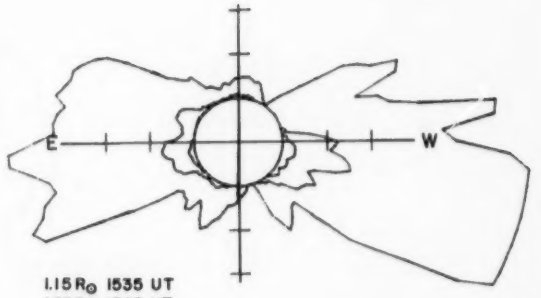
±200

Sp

2136 UT

SEPTEMBER 10, 1981 (P= 23.13, B_o= 7.25, L_o= 66.88)

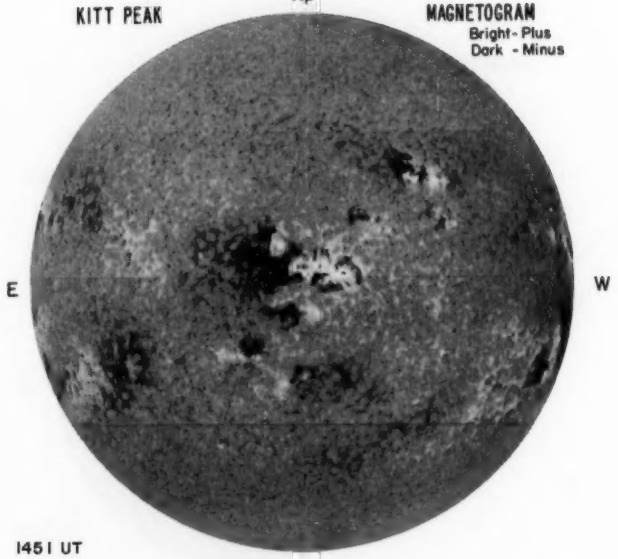
SACRAMENTO PEAK Np CORONA
5303 Å



1.15$R_\odot$ 1535 UT
1.35$R_\odot$ 1510 UT
1.55$R_\odot$ 1520 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus



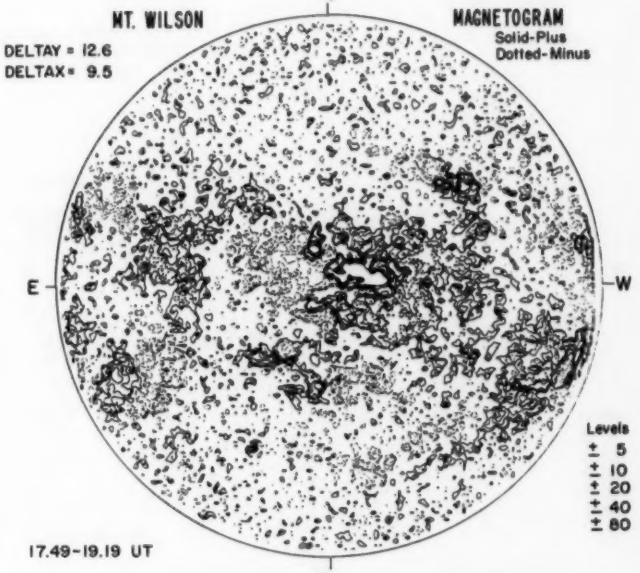
1451 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX= 9.5

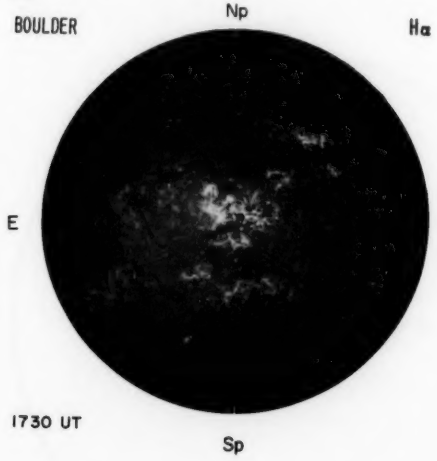


17.49-19.19 UT

Sp

10

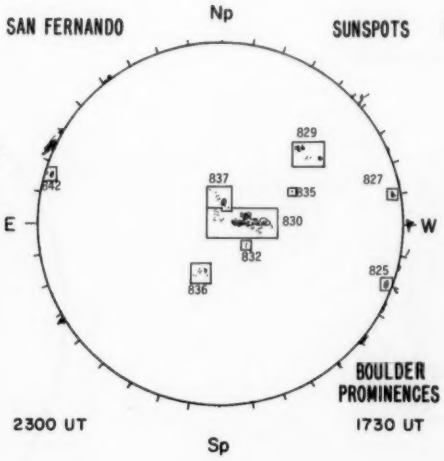
BOULDER



1730 UT

Hα

SAN FERNANDO



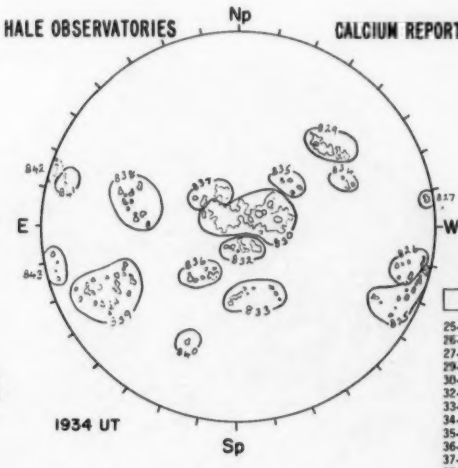
2300 UT

SUNSPOTS

BOULDER PROMINENCES

1730 UT

HALE OBSERVATORIES



1934 UT

CALCIUM REPORT

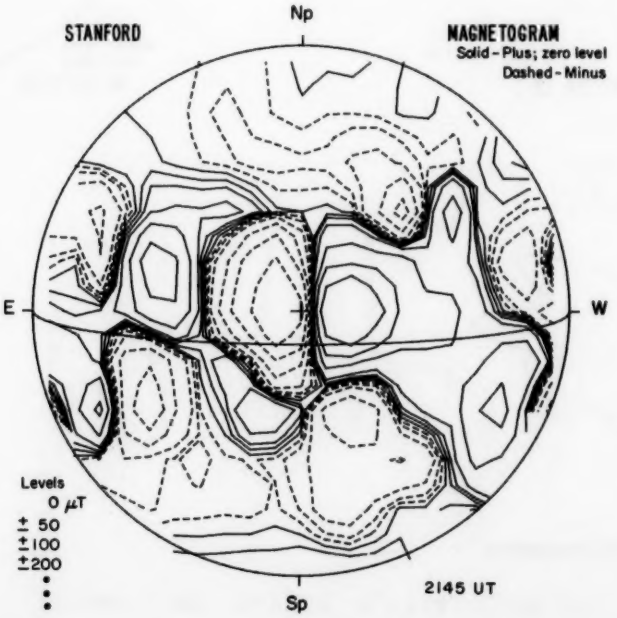
GOOD	JA

25- 1000-3.0
26- 0700-3.0
27- 0300-3.0
29- 1300-3.5
30- 4500-4.0
32- 0600-3.0
33- 0500-3.0
34- 0200-3.0
35- 0400-3.0
36- 0500-3.5
37- 0600-4.0
38- 0800-3.0
39- 2200-3.0
40- 0100-3.0
41- 0200-3.0
42- 0400-4.0
43- 0300-2.5

STANFORD

MAGNETOGRAM

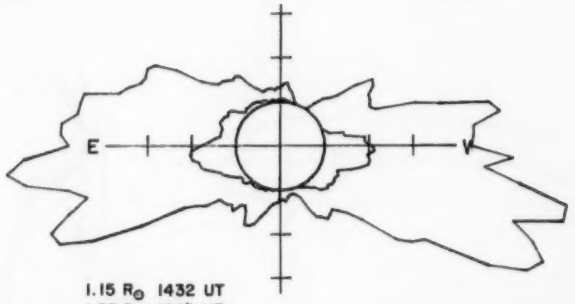
Solid - Plus; zero level
Dashed - Minus



2145 UT

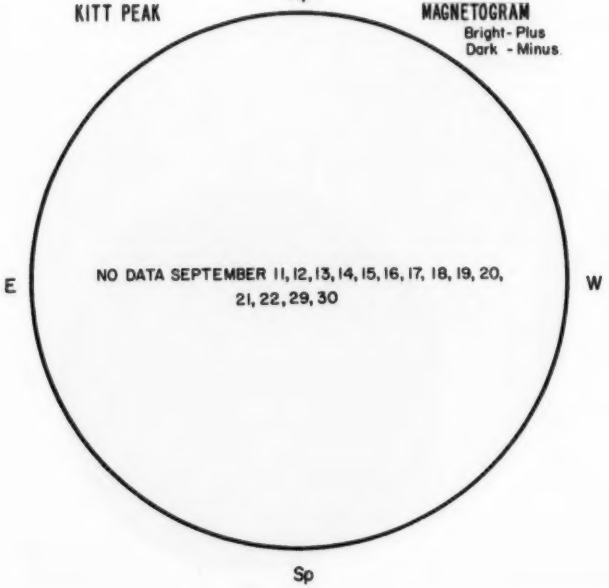
SEPTEMBER 11, 1981 (P= 23.33, B_o = 7.24, L_o = 53.67)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1432 UT
1.35 $R_\odot$ 1440 UT
1.55 $R_\odot$

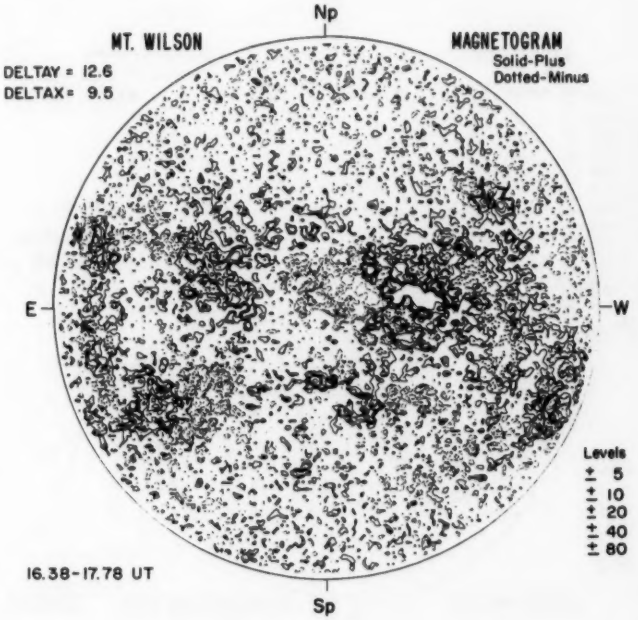
KITT PEAK Np MAGNETOGRAM Bright - Plus Dark - Minus



NO DATA SEPTEMBER 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 29, 30

Sp Np MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5

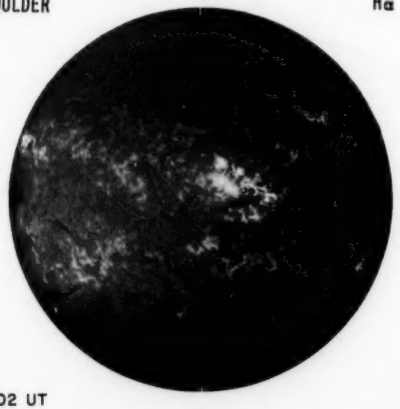


16.38-17.78 UT

11

BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

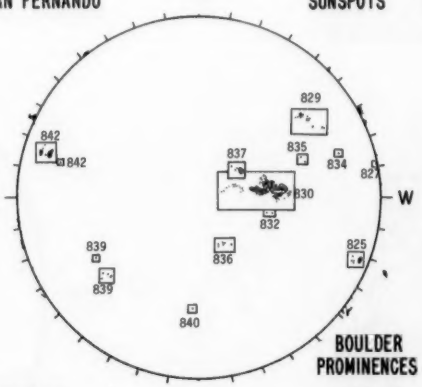
BOULDER



1602 UT

Hα

SAN FERNANDO



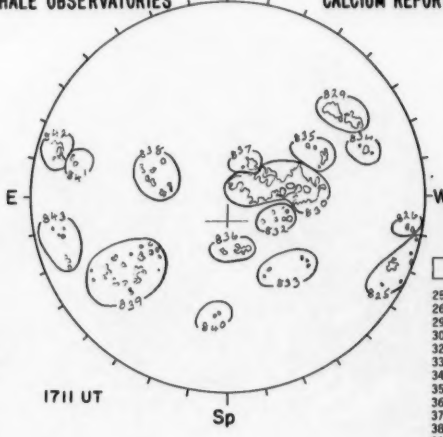
2240 UT

SUNSPOTS

BOULDER PROMINENCES

1602 UT

HALE OBSERVATORIES



1711 UT

CALCIUM REPORT

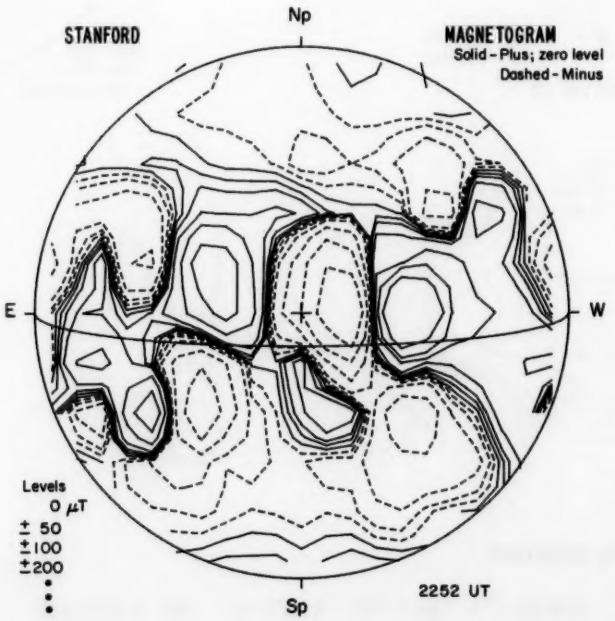
GOOD	JA

25- 0800-3.0
26- 0200-2.5
29- 1400-3.5
30- 5500-4.0
32- 0500-3.0
33- 0300-3.0
34- 0300-3.0
35- 0400-3.0
36- 0400-3.5
37- 0400-3.5
38- 0700-3.0
39- 1800-3.5
40- 0100-3.0
41- 0200-3.0
42- 0700-4.0
43- 0400-3.0

STANFORD

MAGNETOGRAM

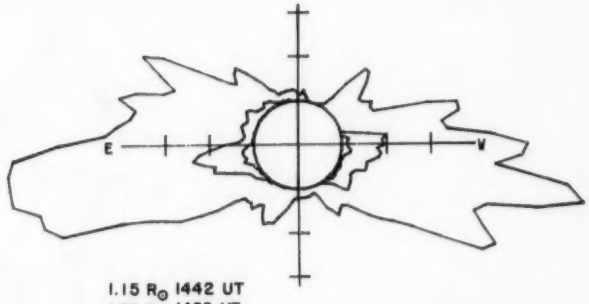
Solid - Plus; zero level
Dashed - Minus



2252 UT

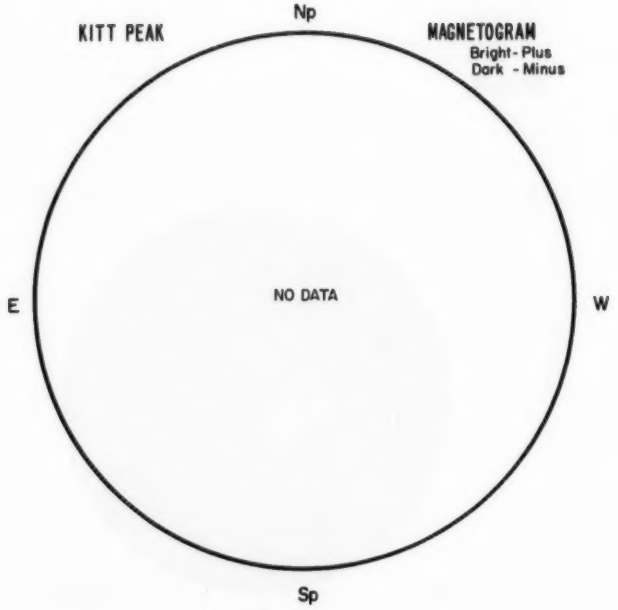
SEPTEMBER 12, 1981 (P= 23.53, B_o= 7.24, L_o= 40.47)

SACRAMENTO PEAK Np CORONA
5303 Å

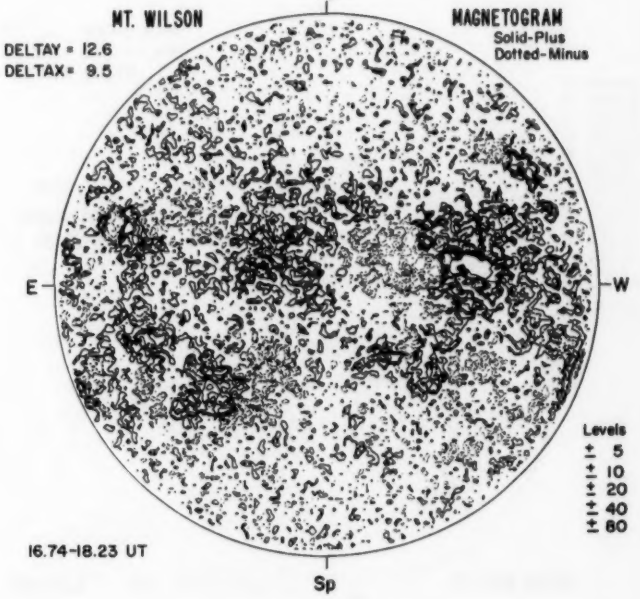


1.15 $R_\odot$ 1442 UT
1.35 $R_\odot$ 1422 UT
1.55 $R_\odot$ 1431 UT

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



Sp
Np
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.5

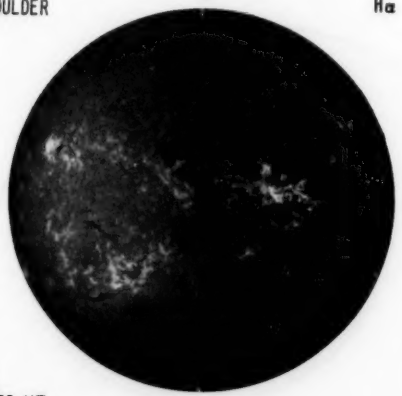


16.74-18.23 UT
Sp

12

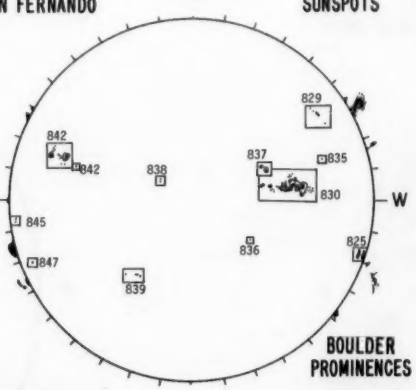
BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

BOULDER Hα



1630 UT

SAN FERNANDO SUNSPOTS

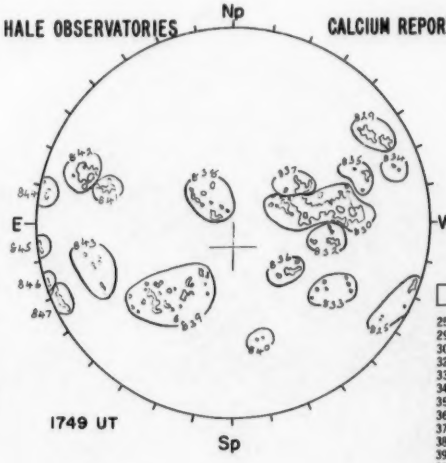


2140 UT

BOULDER PROMINENCES

1630 UT

HALE OBSERVATORIES CALCIUM REPORT



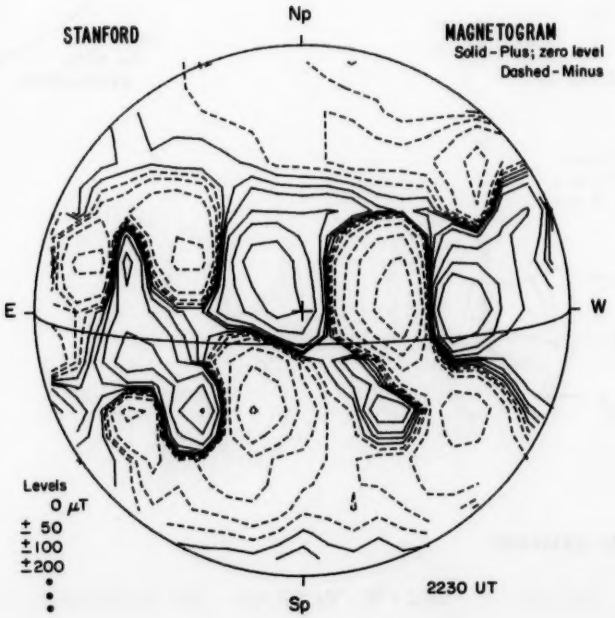
1749 UT

GOOD	JA

25- 0500-3.5
29- 1200-3.0
30- 5700-4.0
32- 0400-3.0
33- 0300-3.0
34- 0200-3.0
35- 0300-3.0
36- 0500-3.0
37- 0600-4.0
38- 0800-3.0
39- 2100-3.5
41- 0500-3.0
42- 1400-4.0
43- 0500-3.0
44- 0300-2.5
45- 0300-3.0
46- 0200-3.0
47- 0500-3.0

STANFORD MAGNETOGRAM

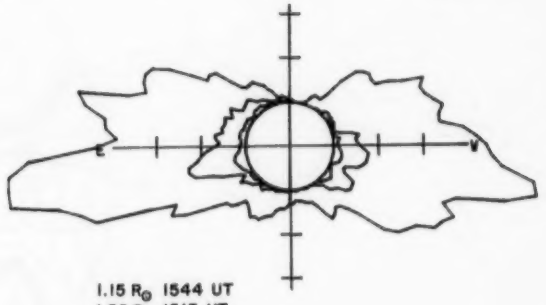
Solid - Plus; zero level
Dashed - Minus



2230 UT

SEPTEMBER 13, 1981 (P= 23.72, B_o = 7.23, L_o = 27.27)

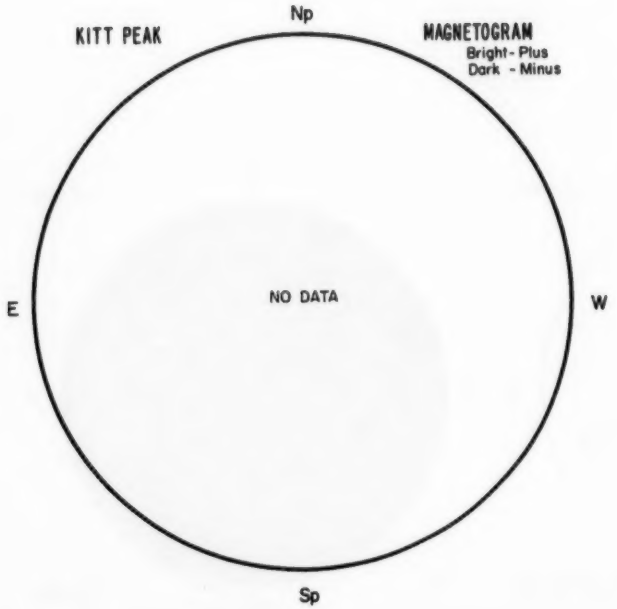
SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1544 UT
1.35 $R_\odot$ 1513 UT
1.55 $R_\odot$ 1523 UT

Sp

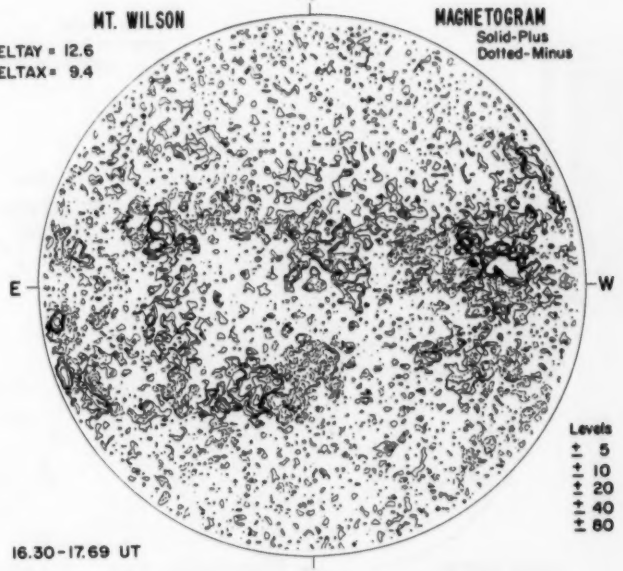
KITT PEAK Np MAGNETOGRAM Bright - Plus Dark - Minus



Np

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

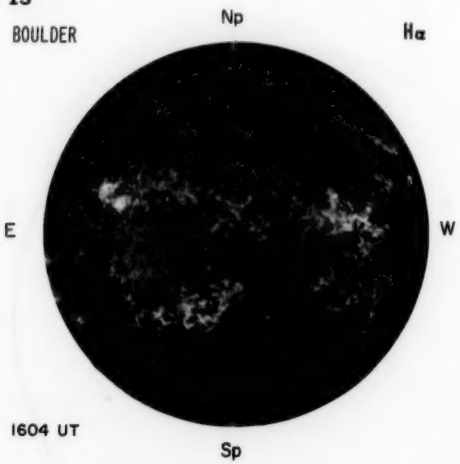
DELTAY = 12.6
DELTAX = 9.4

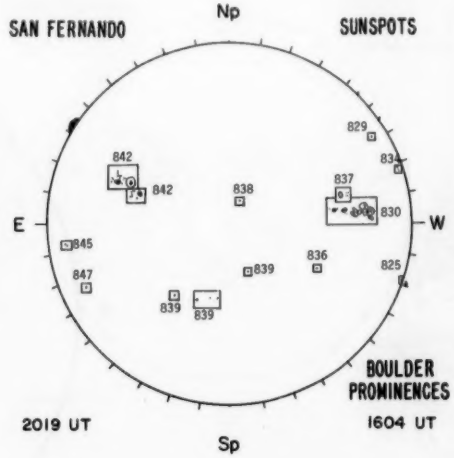


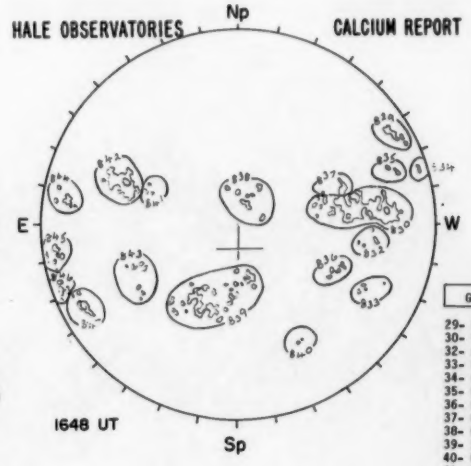
16.30-17.69 UT

Sp

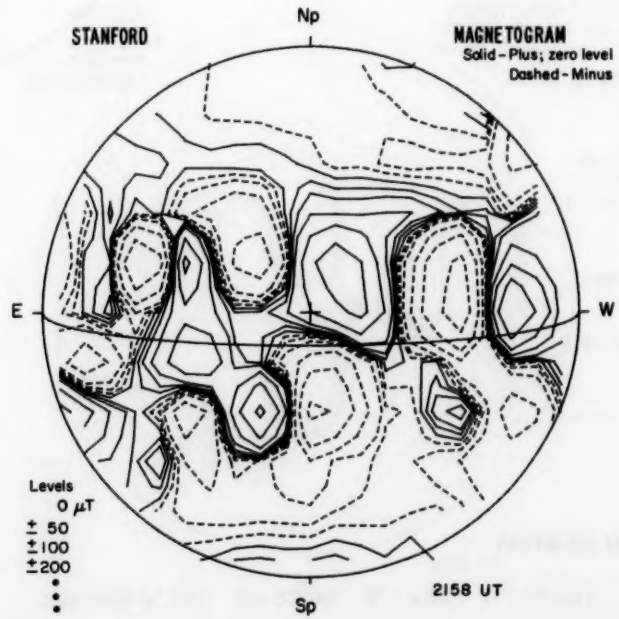
13





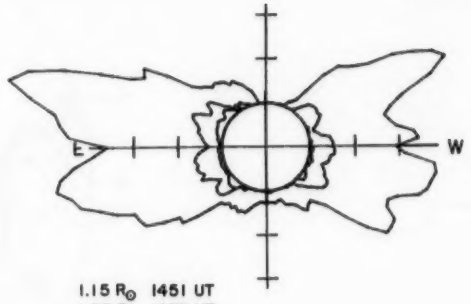


GOOD	JA
29-	0800-3.5
30-	5900-4.0
32-	0300-2.5
33-	0300-2.5
34-	0200-3.5
35-	0300-3.0
36-	0400-3.0
37-	0500-4.0
38-	0700-3.0
39-	3000-3.5
40-	0100-2.5
41-	0200-3.0
42-	2100-4.0
43-	0500-3.0
44-	0600-3.0
45-	0700-3.5
46-	0500-3.5
47-	0800-3.5



SEPTEMBER 14, 1981 (P= 23.90, B_o= 7.22, L_o= 14.06)

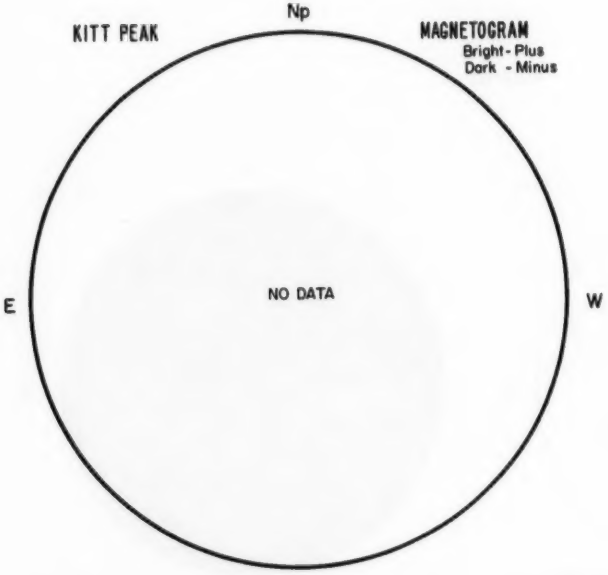
SACRAMENTO PEAK Np CORONA
5303 Å



1.15 $R_\odot$ 1451 UT
1.35 $R_\odot$ 1459 UT
1.55 $R_\odot$ 1509 UT

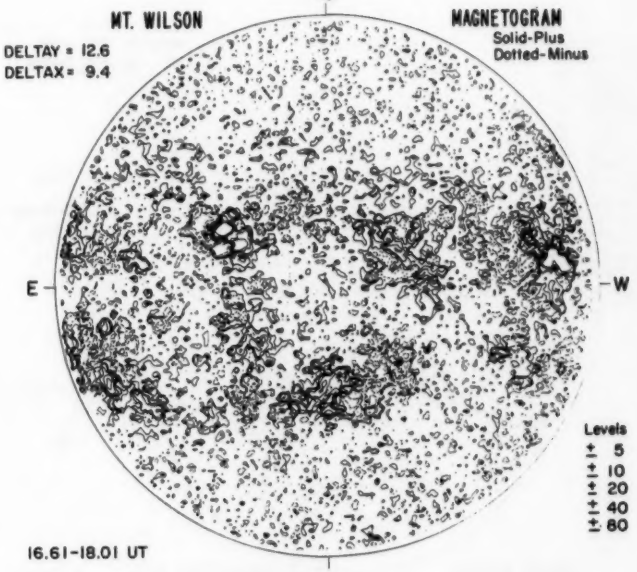
Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.4



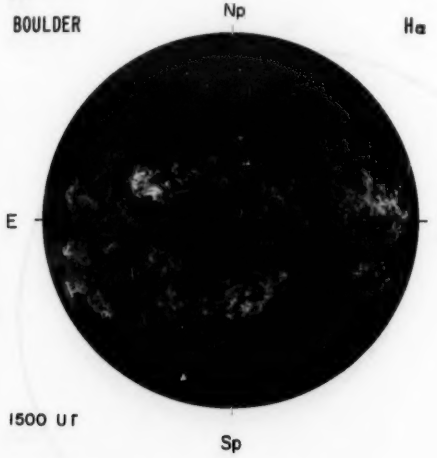
16.61-18.01 UT

Sp

14

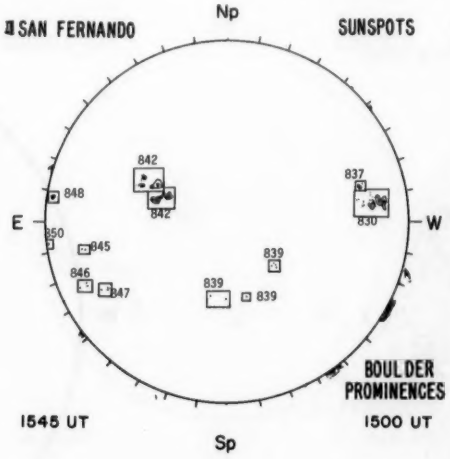
BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

BOULDER



1500 UT

Hα SAN FERNANDO



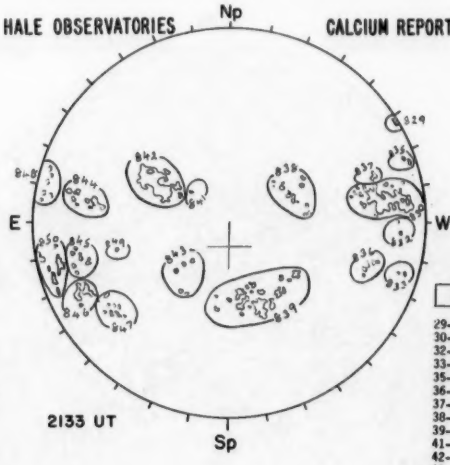
1545 UT

SUNSPOTS

BOULDER PROMINENCES

1500 UT

HALE OBSERVATORIES



2133 UT

CALCIUM REPORT

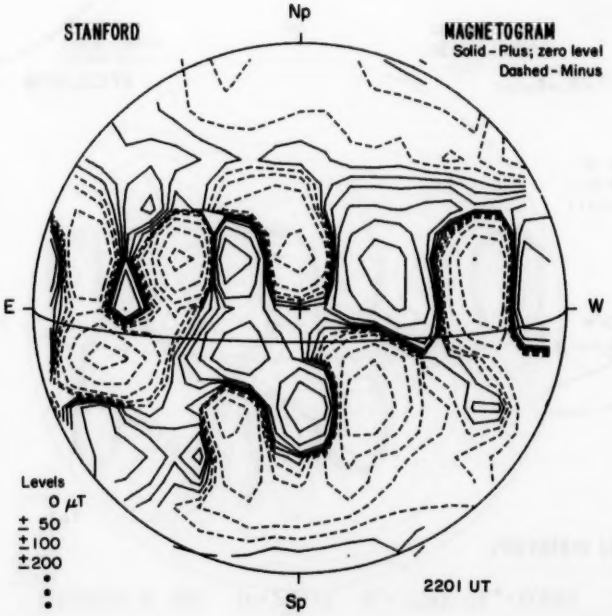
G000	JA

29- 0200-3.5
30- 4400-4.0
32- 0200-2.5
33- 0200-2.5
35- 0200-3.0
36- 0500-3.0
37- 0300-2.5
38- 0800-3.0
39- 2500-3.5
41- 0100-3.0
42- 2900-4.0
43- 0500-3.0
44- 0900-3.0
45- 0700-3.0
46- 0900-3.5
47- 0600-3.5
48- 0600-3.0
49- 0100-3.0
50- 1300-3.5

STANFORD

MAGNETOGRAM

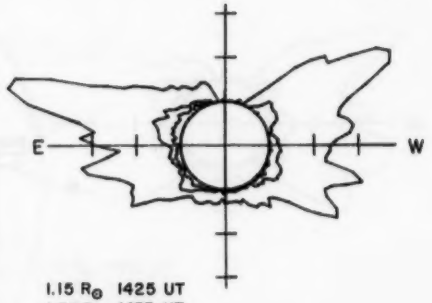
Solid - Plus; zero level
Dashed - Minus



2201 UT

SEPTEMBER 15, 1981 (P= 24.07, B_o = 7.20, L_o = 0.86)

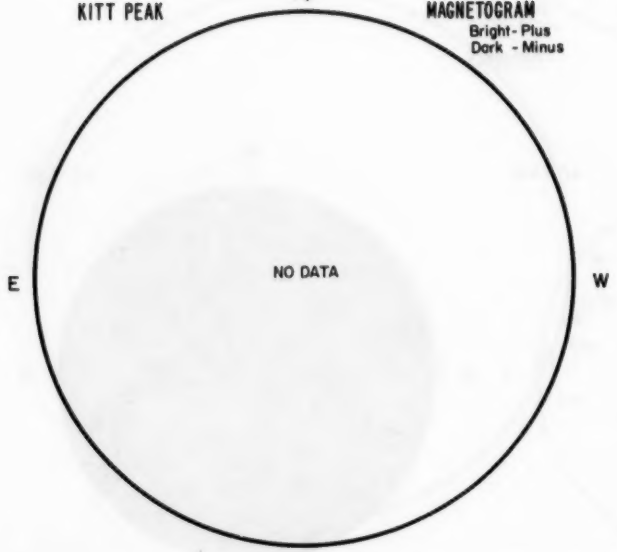
SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1425 UT
1.35 $R_\odot$ 1433 UT
1.55 $R_\odot$ 1443 UT

Sp

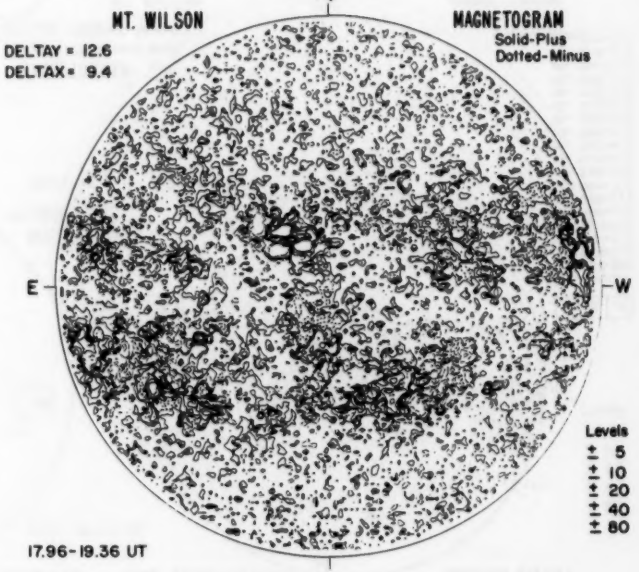
KITT PEAK Np MAGNETOGRAM Bright - Plus Dark - Minus



Sp

MT. WILSON Np MAGNETOGRAM Solid - Plus Dotted - Minus

DELTAY = 12.6
DELTAX = 9.4



17.96 - 19.36 UT

Sp

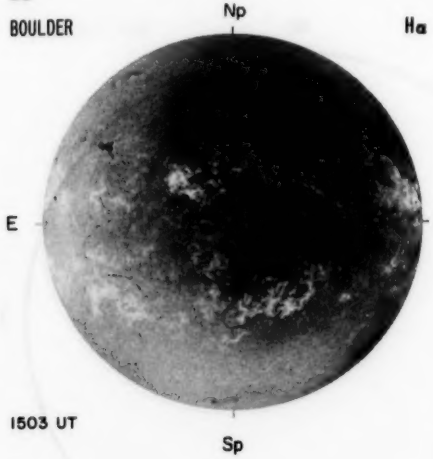
15

BOULDER Np Hα BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

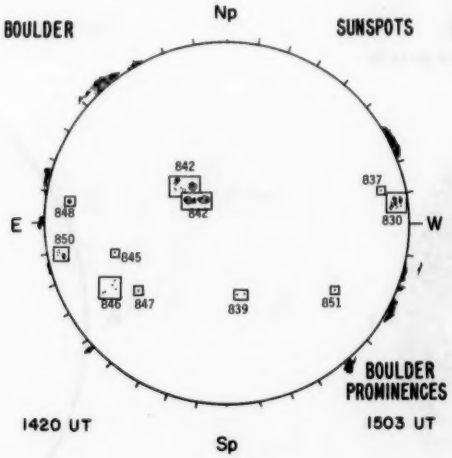
15

BOULDER



1503 UT

Hα BOULDER



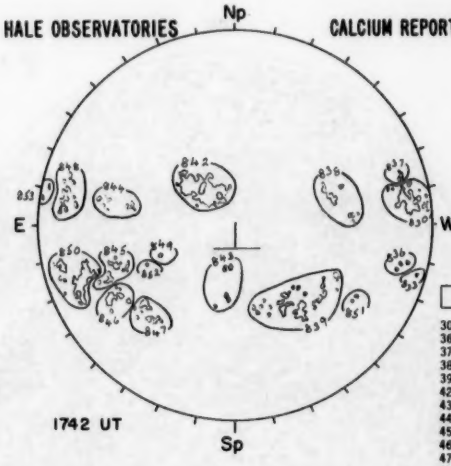
1420 UT

SUNSPOTS

BOULDER PROMINENCES

1503 UT

HALE OBSERVATORIES



1742 UT

CALCIUM REPORT

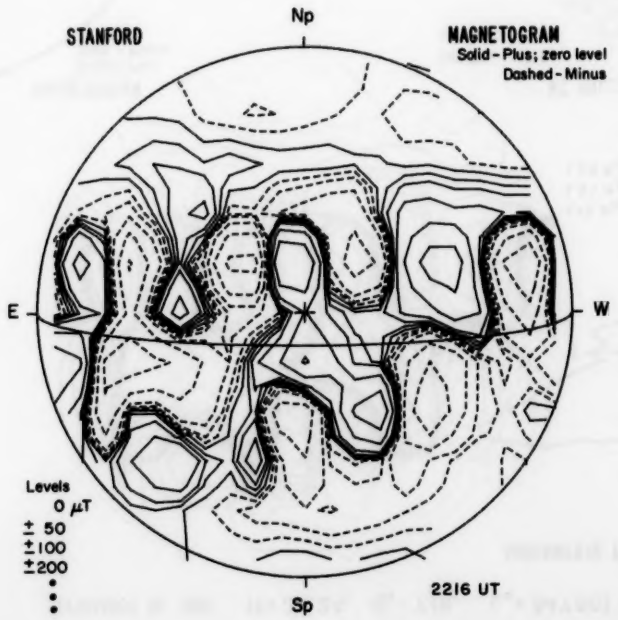
	GOOD	JA
30-	2500-3.5	
36-	0300-3.0	
37-	0300-3.5	
38-	0700-3.0	
39-	2500-3.5	
42-	3500-4.0	
43-	0400-3.0	
44-	0500-3.5	
45-	0800-3.5	
46-	0900-3.5	
47-	0700-3.0	
48-	1100-3.0	
49-	0100-2.5	
50-	3100-4.0	
51-	0200-3.0	
52-	0100-3.0	
53-	0300-3.5	

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

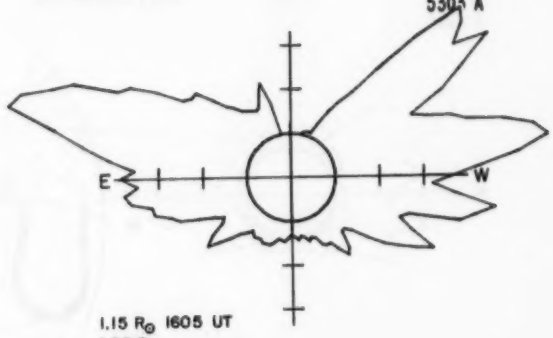
Dashed - Minus



2216 UT

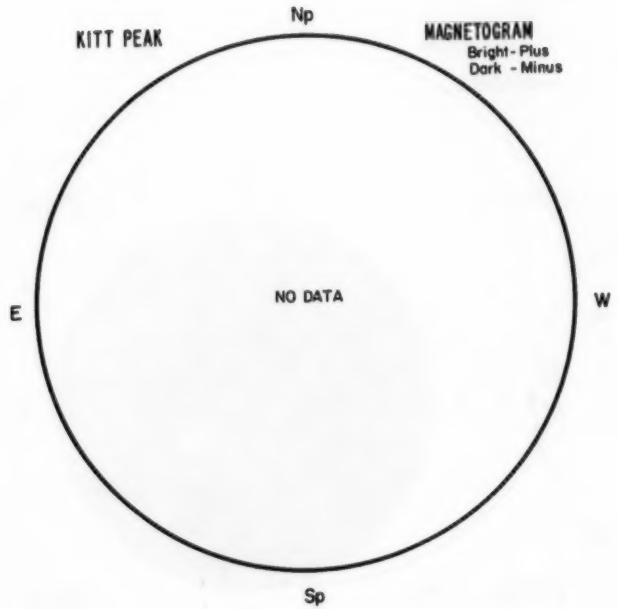
SEPTEMBER 16, 1981 (P= 24.24, B_o = 7.19, L_o = 347.66)

SACRAMENTO PEAK Np CORONA 5303 Å



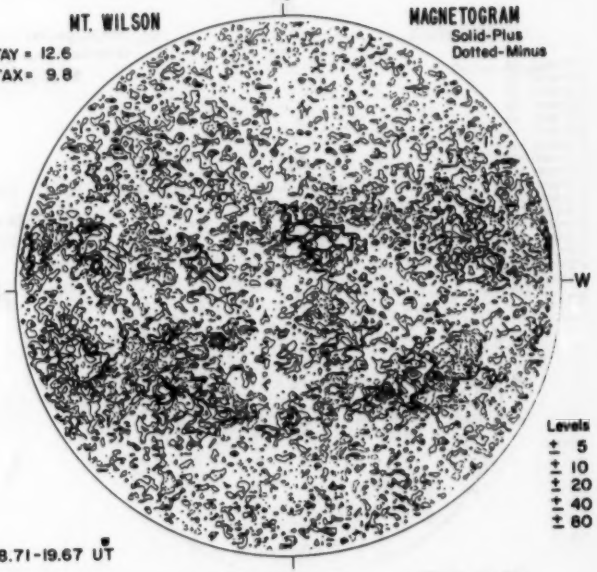
1.15 $R_\odot$ 1605 UT
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK Np MAGNETOGRAM Bright - Plus Dark - Minus



Sp Np MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.6
DELTAX = 9.8



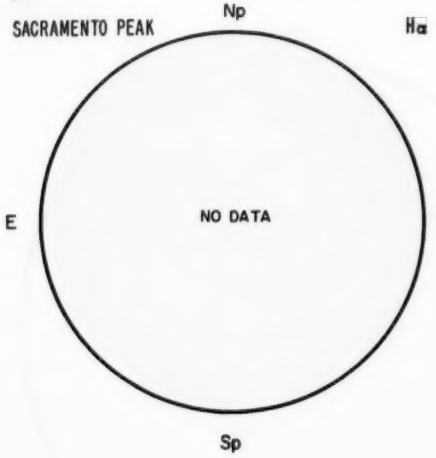
18.71-19.67 UT Sp

16

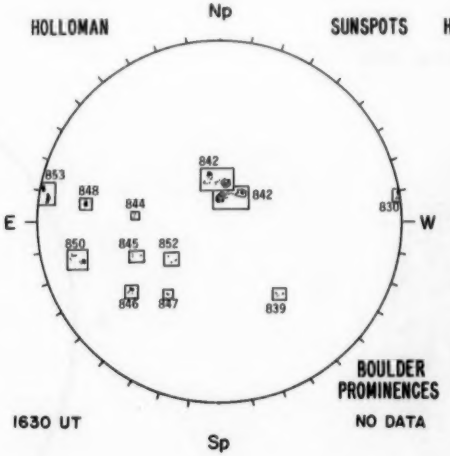
SACRAMENTO PEAK Np Hα HOLLOMAN Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

16

SACRAMENTO PEAK Hα



HOLLOMAN SUNSPOTS

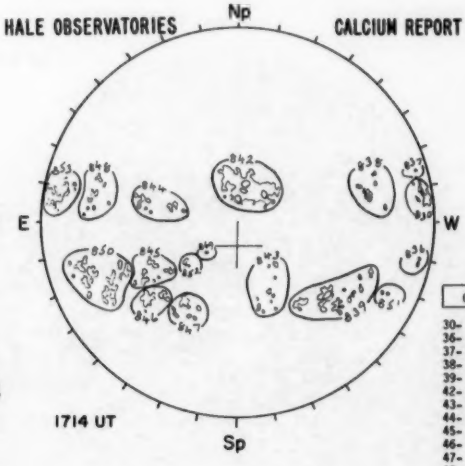


1630 UT

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES CALCIUM REPORT



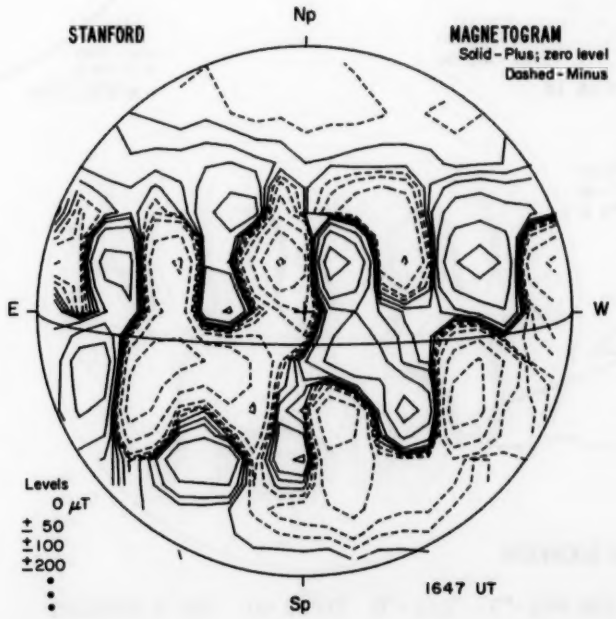
1714 UT

GOOD	JA

30- 1100-3.0
36- 0200-3.0
37- 0100-3.0
38- 0700-3.0
39- 2000-3.0
42- 3800-3.5
43- 0400-3.0
44- 0800-3.0
45- 0800-4.0
46- 1000-3.0
47- 0800-3.0
48- 0900-3.0
49- 0100-2.5
50- 3000-3.5
51- 0200-3.0
52- 0200-3.0
53- 1800-3.5

STANFORD MAGNETOGRAM

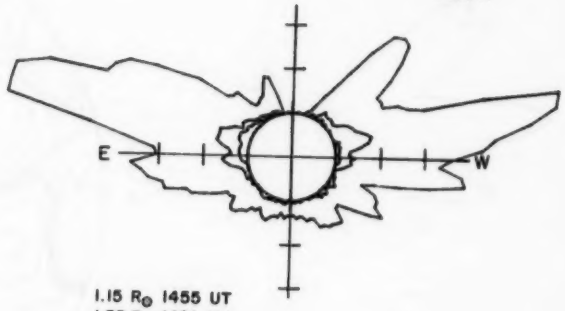
Solid - Plus; zero level
Dashed - Minus



1647 UT

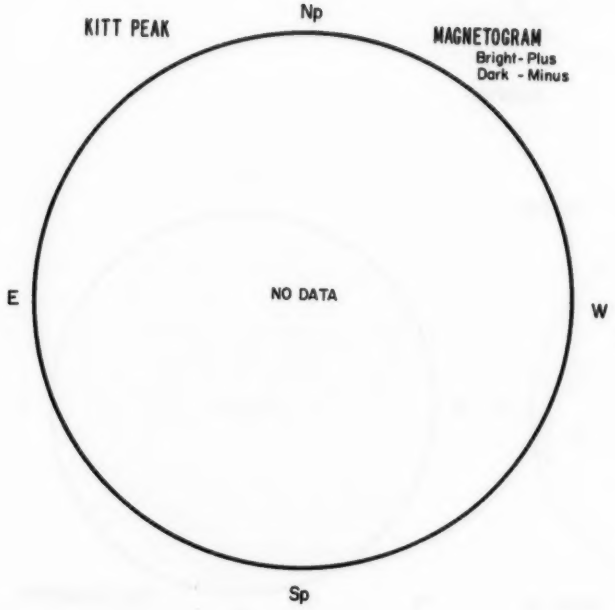
SEPTEMBER 17, 1981 (P= 24.40, B_o = 7.17, L_o = 334.46)

SACRAMENTO PEAK Np CORONA 5303 Å



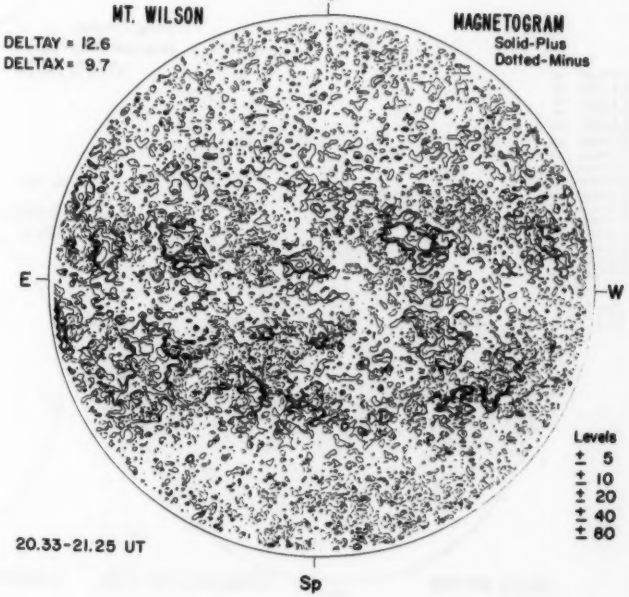
1.15 $R_\odot$ 1455 UT
1.35 $R_\odot$ 1421 UT
1.55 $R_\odot$ 1444 UT

KITT PEAK Np MAGNETOGRAM Bright - Plus Dark - Minus



Sp Np MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.6
DELTAX = 9.7

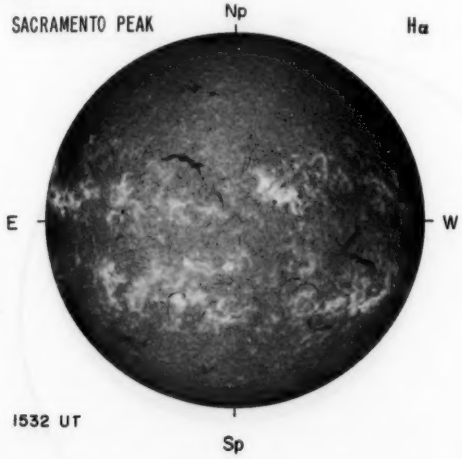


20.33-21.25 UT

17

SACRAMENTO PEAK Np Hα HOLLOMAN Np SUNSPOTS HALE OBSERVATORIES Np

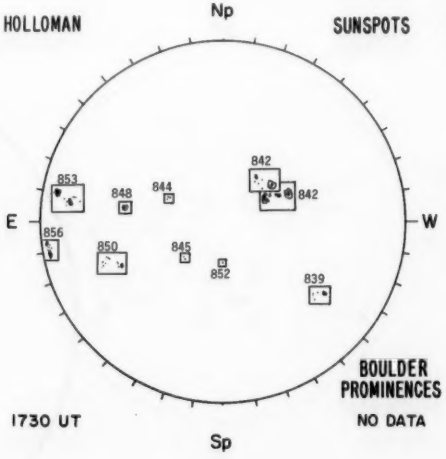
SACRAMENTO PEAK



1532 UT

Hα

HOLLOMAN



1730 UT

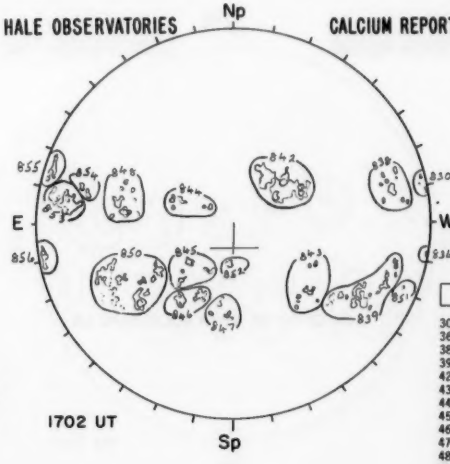
SUNSPOTS

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES

CALCIUM REPORT



1702 UT

GOOD	JA

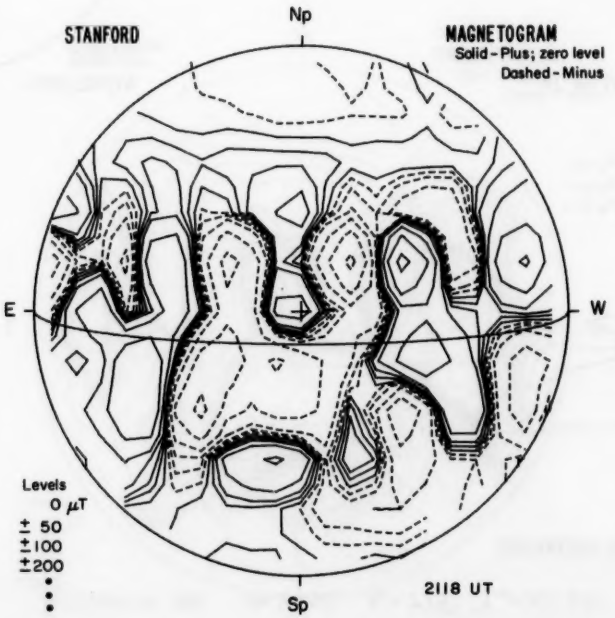
30- 0200-2.5
36- 0100-2.5
38- 1000-3.0
39- 2300-3.5
42- 3300-4.0
43- 0700-3.0
44- 0500-3.0
45- 0600-3.0
46- 0900-3.5
47- 0500-3.0
48- 1100-3.0
50- 3000-3.5
51- 0100-2.5
52- 0200-3.0
53- 2200-3.5
54- 0400-3.0
55- 0700-3.0
56- 0500-4.0

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

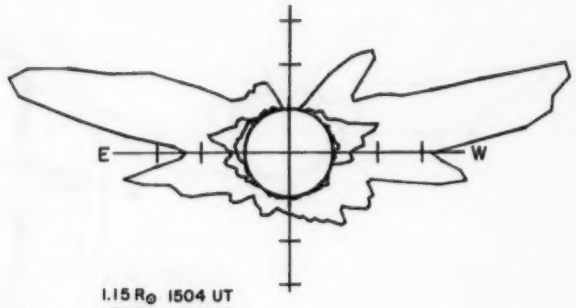
Dashed - Minus



2118 UT

SEPTEMBER 18, 1981 (P= 24.56, B_o = 7.15, L_o = 321.25)

SACRAMENTO PEAK Np CORONA
5303 Å

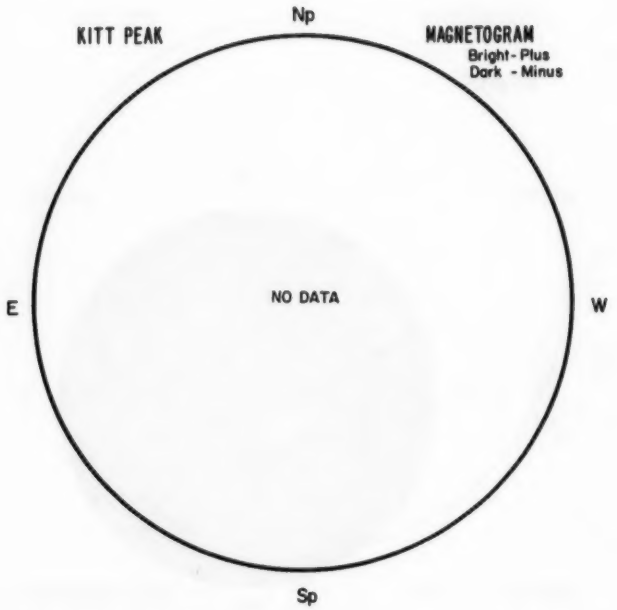


1.15 $R_\odot$ 1504 UT
1.35 $R_\odot$ 1444 UT
1.55 $R_\odot$ 1453 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA SEPTEMBER 18, 24, 29, 30 W

Levels
+ 5
+ + 10
+ + + 20
+ + + + 40
+ + + + + 60

Sp

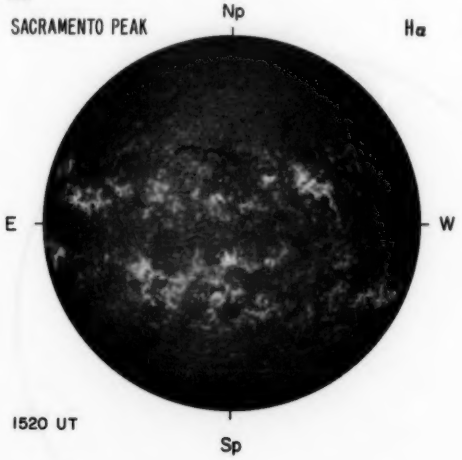
18

SACRAMENTO PEAK Np

Np

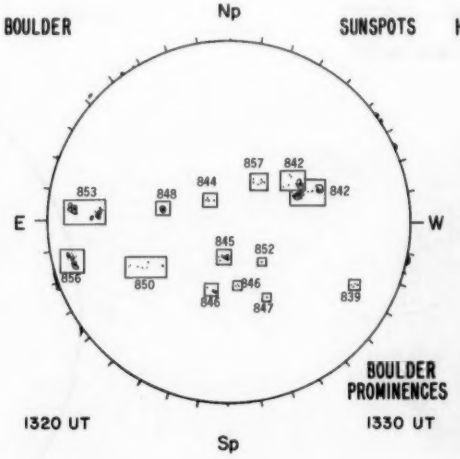
Np

SACRAMENTO PEAK Hα



1520 UT

BOULDER SUNSPOTS

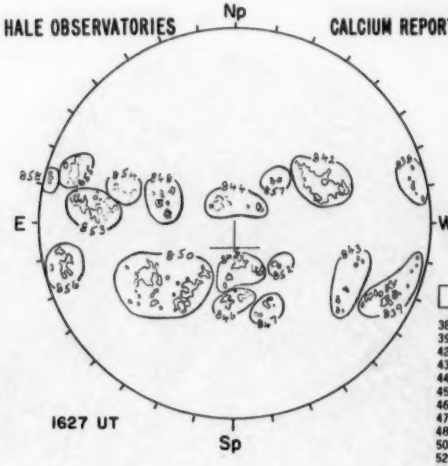


1320 UT

BOULDER PROMINENCES

1330 UT

HALE OBSERVATORIES CALCIUM REPORT

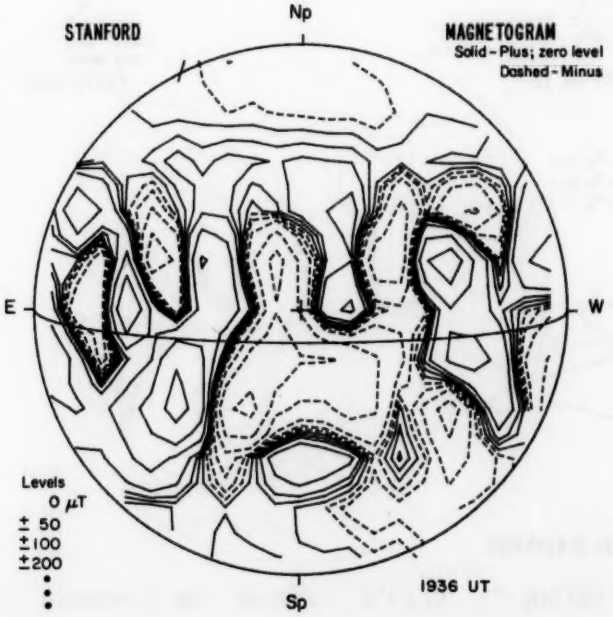


1627 UT

GOOD	JA
38- 0500-2.5	
39- 1700-3.0	
42- 3300-3.5	
43- 0500-3.0	
44- 0700-3.0	
45- 0800-3.5	
46- 0700-3.5	
47- 0300-3.0	
48- 0600-3.0	
50- 4000-3.5	
52- 0200-3.0	
53- 2300-3.5	
54- 0600-3.0	
55- 1100-3.0	
56- 1200-4.0	
57- 0200-3.0	
58- 0300-2.5	

STANFORD MAGNETOGRAM

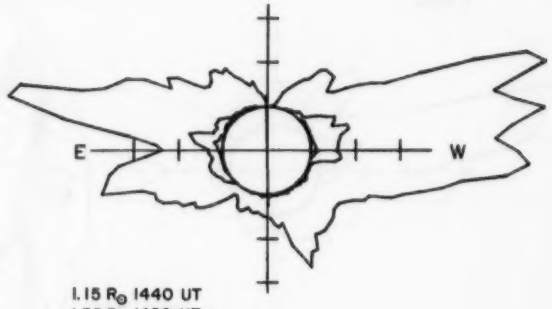
Solid - Plus; zero level
Dashed - Minus



1936 UT

SEPTEMBER 19, 1981 (P= 24.71, B_o= 7.13, L_o= 308.05)

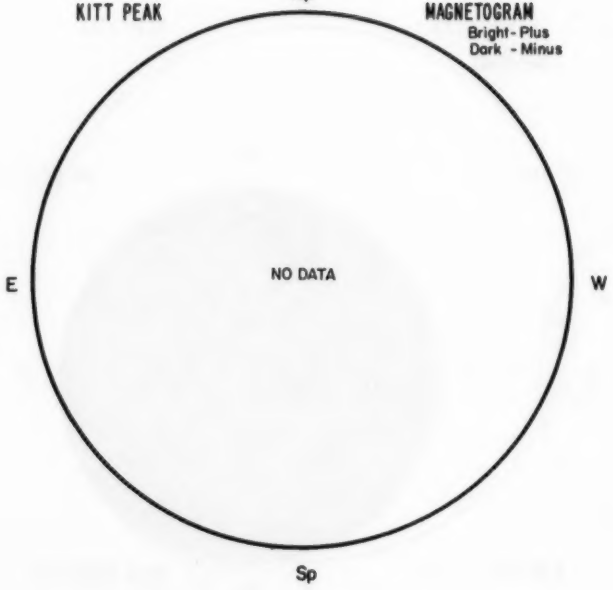
SACRAMENTO PEAK Np CORONA
5303 Å



1.15 $R_\odot$ 1440 UT
1.35 $R_\odot$ 1420 UT
1.55 $R_\odot$ 1429 UT

Sp

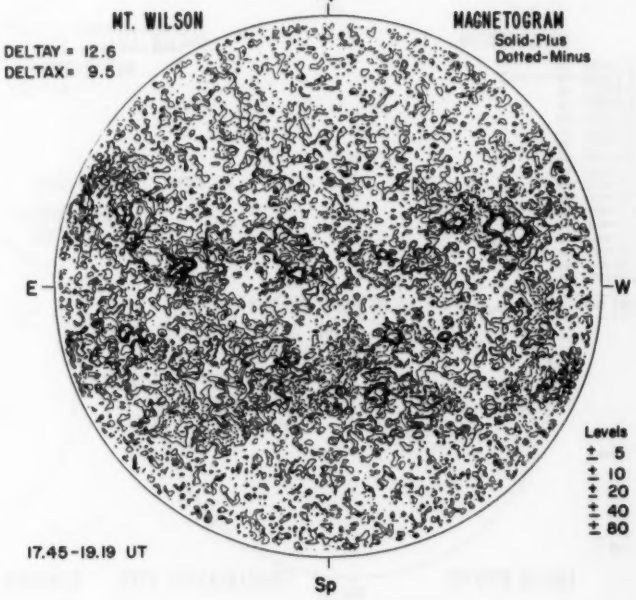
KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus



Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5

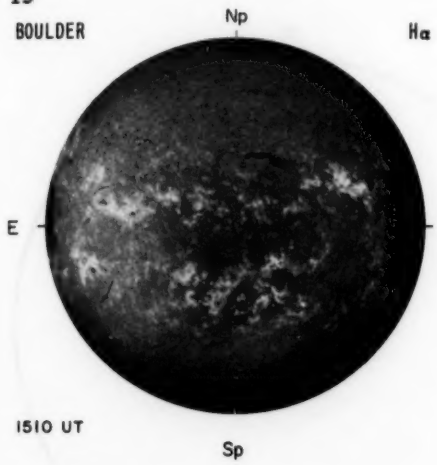


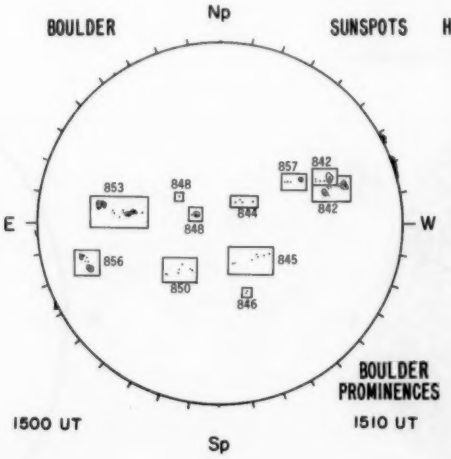
17.45-19.19 UT

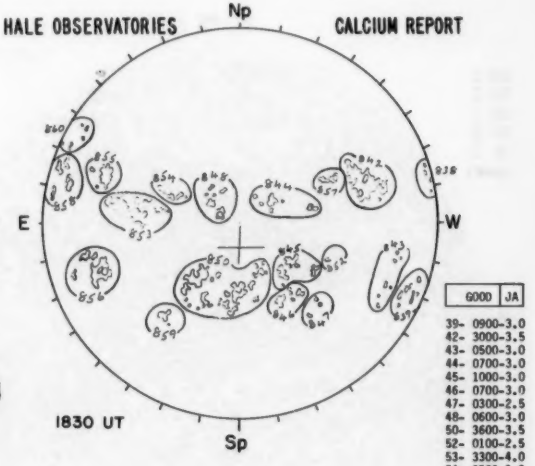
19

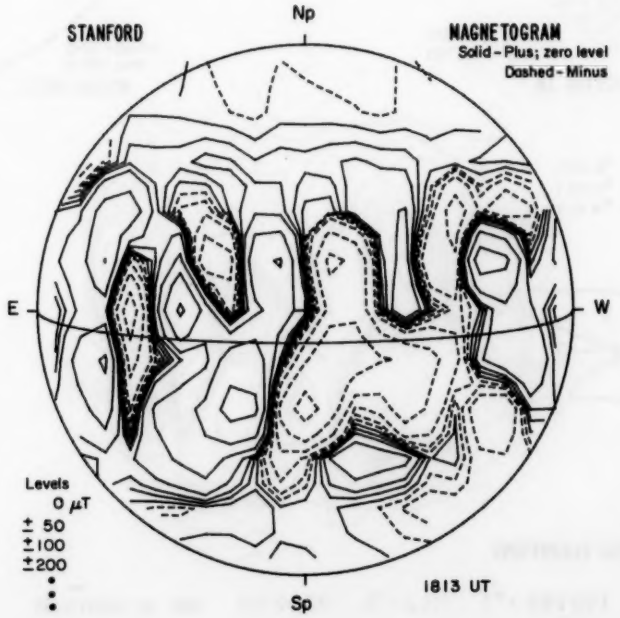
BOULDER Np Hα BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

19


BOULDER
Np
Hα
E
W
Sp
1510 UT

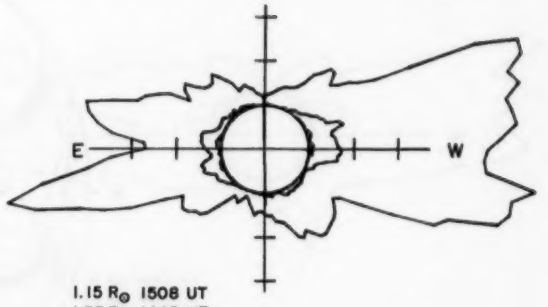

BOULDER
Np
SUNSPOTS
853
848
848
844
857
842
842
856
850
845
846
E
W
Sp
1500 UT
BOULDER
PROMINENCES
1510 UT


HALE OBSERVATORIES
Np
CALCIUM REPORT
E
W
Sp
1830 UT
6000 JA
39- 0900-3.0
42- 3000-3.5
43- 0500-3.0
44- 0700-3.0
45- 1000-3.0
46- 0700-3.0
47- 0300-2.5
48- 0600-3.0
50- 3600-3.5
52- 0100-2.5
53- 3300-4.0
54- 0500-3.0
55- 1300-3.0
56- 2000-4.0
57- 0300-3.0
58- 1500-3.0
59- 0500-3.0
60- 0500-2.5


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
Sp
1813 UT

SEPTEMBER 20, 1981 (P= 24.86, B_o = 7.11, L_o = 294.85)

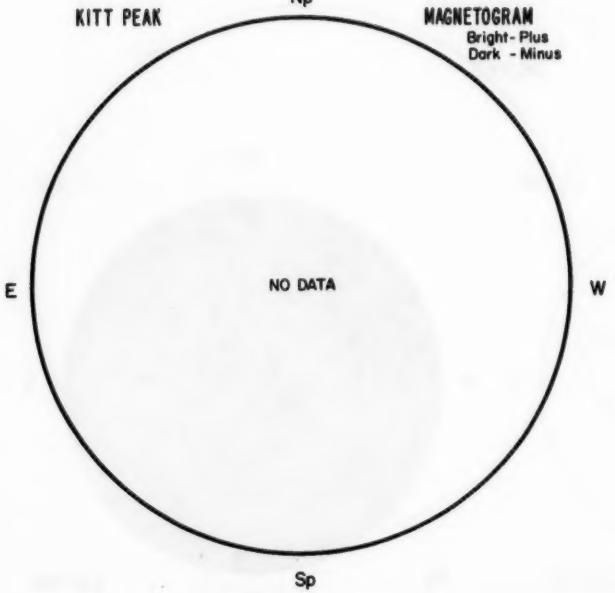
SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1508 UT
1.35 $R_\odot$ 1448 UT
1.55 $R_\odot$ 1457 UT

Sp

KITT PEAK Np MAGNETOGRAM Bright- Plus Dark - Minus

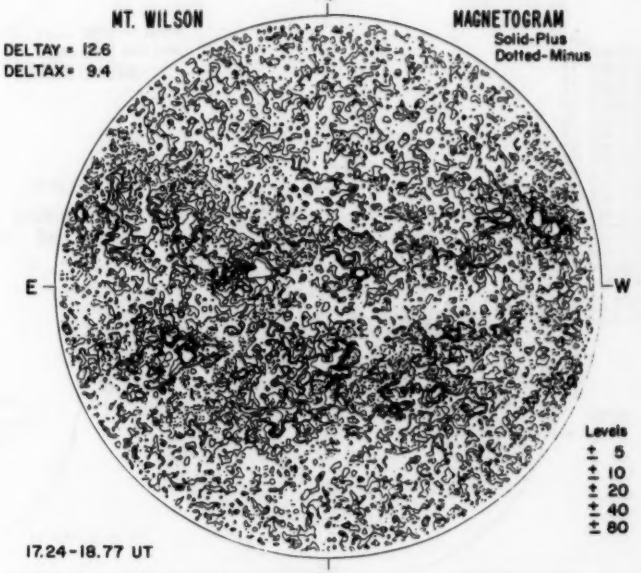


Sp

Np

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.6
DELTAX = 9.4



17.24-18.77 UT

Sp

BOULDER Np H_α BOULDER Np SUNSPOTS HALF OBSERVATORIES Np

Sp

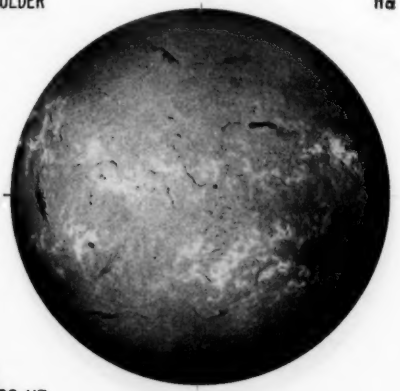
Sp

20

BOULDER

Np

Hα



E

W

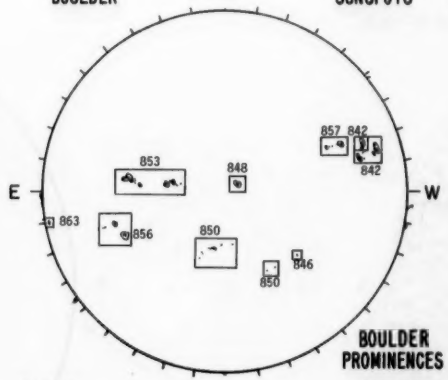
1500 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1415 UT

Sp

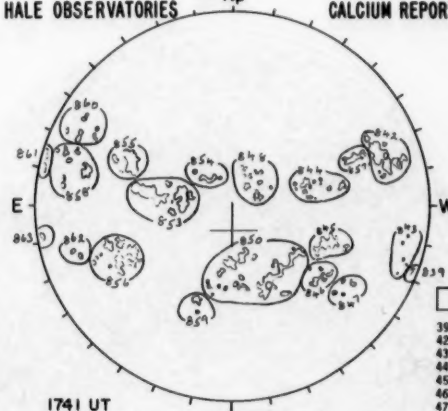
BOULDER PROMINENCES

1515 UT

HALE OBSERVATORIES

Np

CALCIUM REPORT



E

W

1741 UT

Sp

G000	JA
39-	0300-2.5
42-	2500-3.5
43-	0400-2.5
44-	0900-3.0
45-	1300-3.0
46-	0600-3.5
47-	0300-3.0
48-	0700-3.0
50-	3600-3.5
53-	3000-4.0
54-	0400-3.0
55-	1400-3.5
56-	2100-4.0
57-	0500-3.0
58-	1300-3.0
59-	0300-3.0
60-	0800-3.0
61-	0400-3.0
62-	0200-3.0
63-	0200-3.0

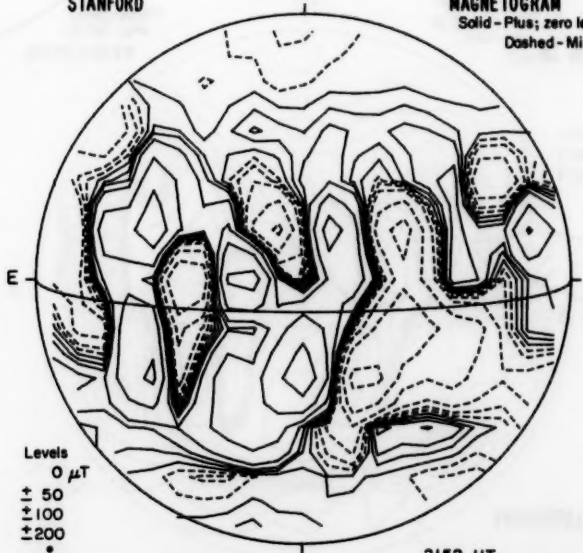
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

•

•

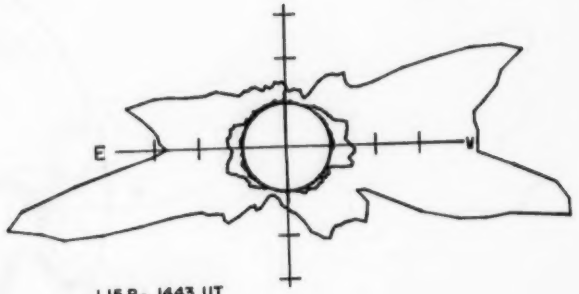
•

Sp

2152 UT

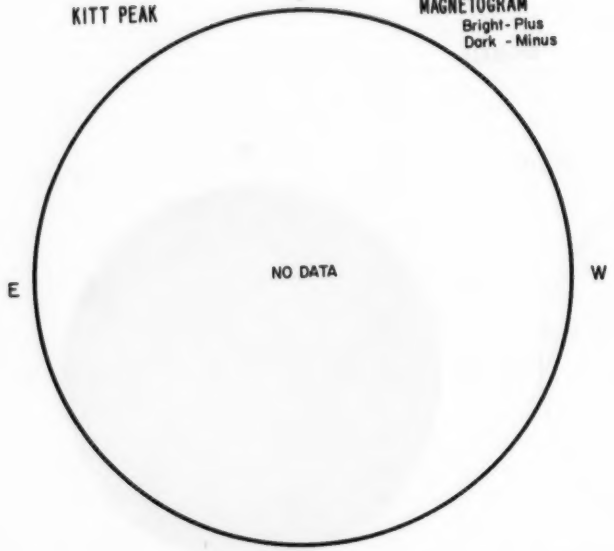
SEPTEMBER 21, 1981 (P= 24.99, B_o = 7.08, L_o = 281.65)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1443 UT
1.35 $R_\odot$ 1422 UT
1.55 $R_\odot$ 1432 UT

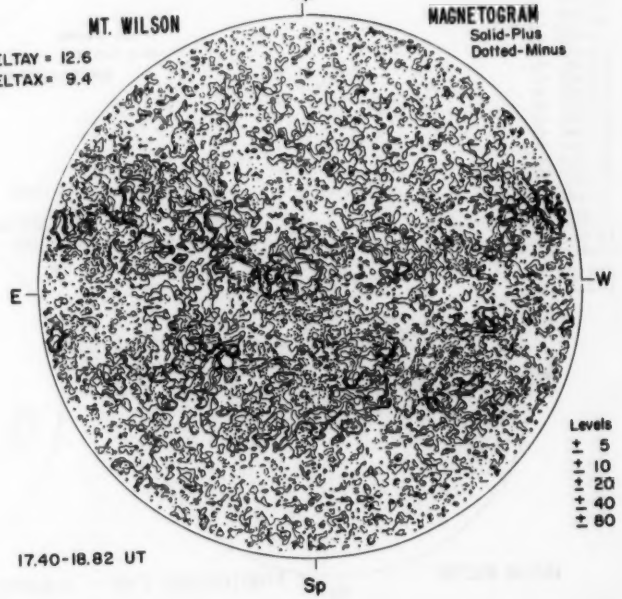
KITT PEAK Np MAGNETOGRAM Bright-Plus Dark-Minus



Sp Np

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.6
DELTAX = 9.4



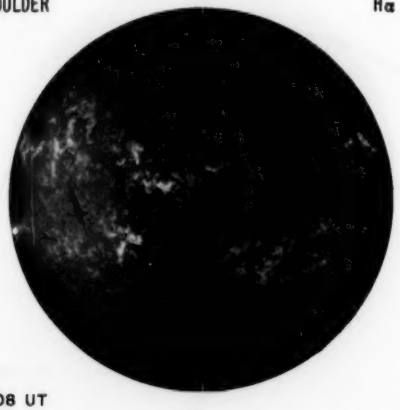
17.40-18.82 UT

Sp

Sp

21

BOULDER Np Hα

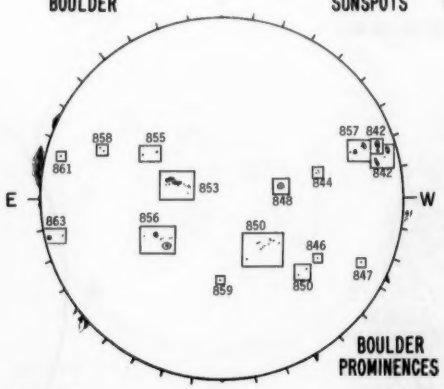


E W

1508 UT

Sp

BOULDER Np SUNSPOTS



E W

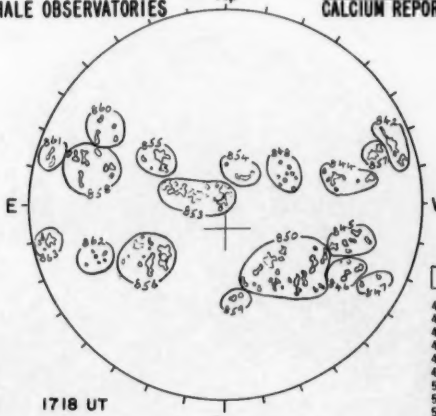
1530 UT

Sp

BOULDER PROMINENCES

1508 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1718 UT

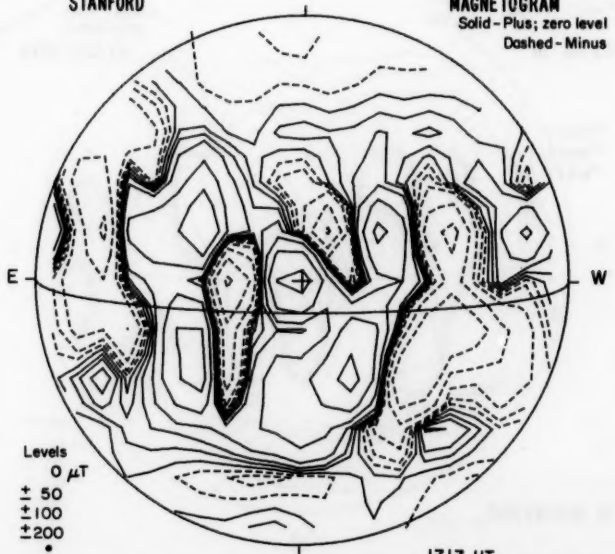
Sp

GOOD	JA

42- 1100-3.5
44- 0700-3.0
45- 0800-3.0
46- 0500-3.0
47- 0200-2.5
48- 0500-3.0
50- 3500-3.0
53- 2300-3.5
54- 0400-3.0
55- 1000-3.0
56- 1800-4.0
57- 0500-3.0
58- 1800-3.0
59- 0300-3.0
60- 0700-3.0
61- 0500-3.0
63- 0700-3.0

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



E W

Levels
0 μT
± 50
±100
±200
•
•
•

1717 UT

Sp

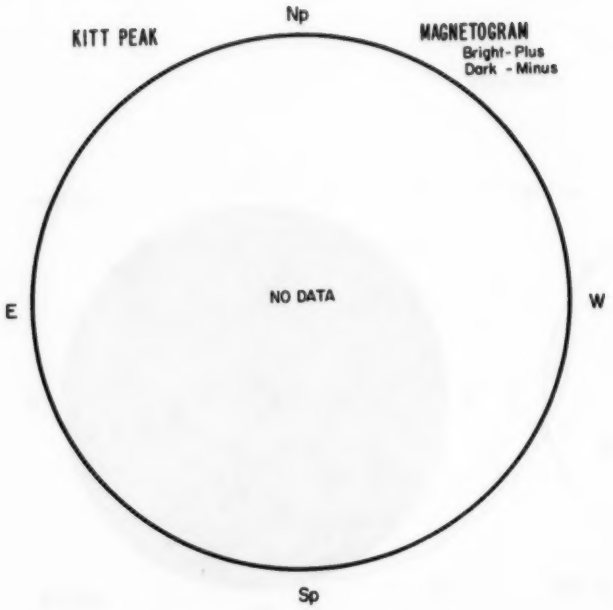
SEPTEMBER 22, 1981 (P= 25.12, B_o = 7.05, L_o = 268.45)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

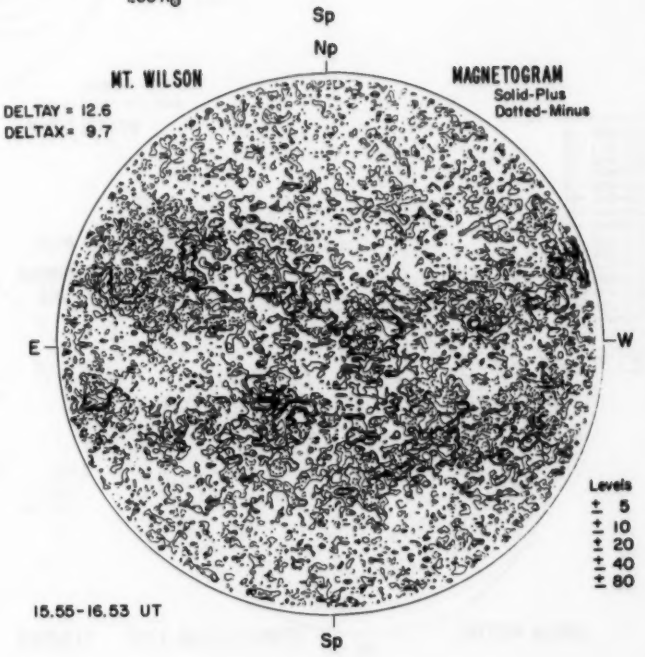
1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK



MT. WILSON

DELTAY = 12.6
DELTAX = 9.7



22

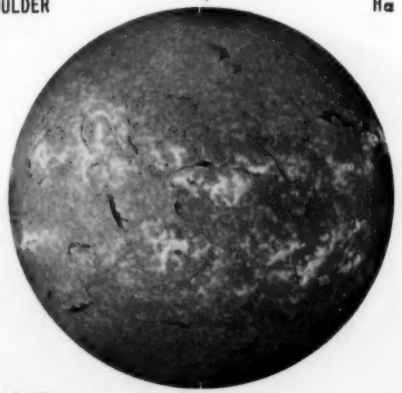
BOULDER Np Hα BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

22

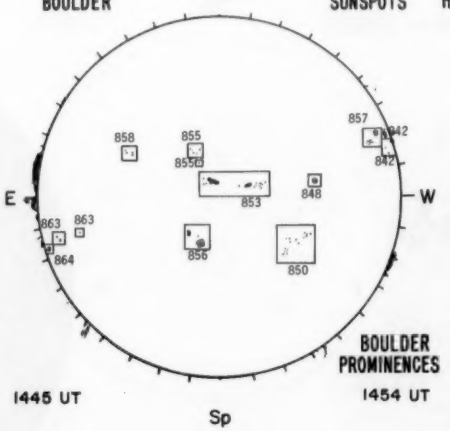
BOULDER



Hα

1454 UT

BOULDER



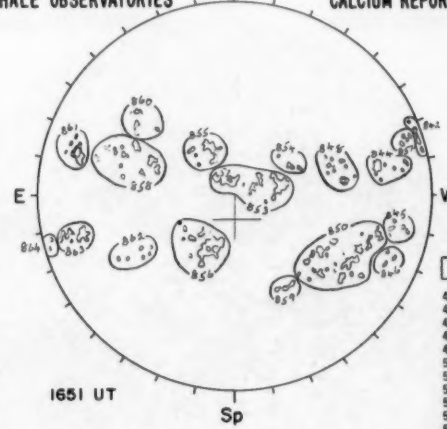
SUNSPOTS

1445 UT

BOULDER PROMINENCES

1454 UT

HALE OBSERVATORIES



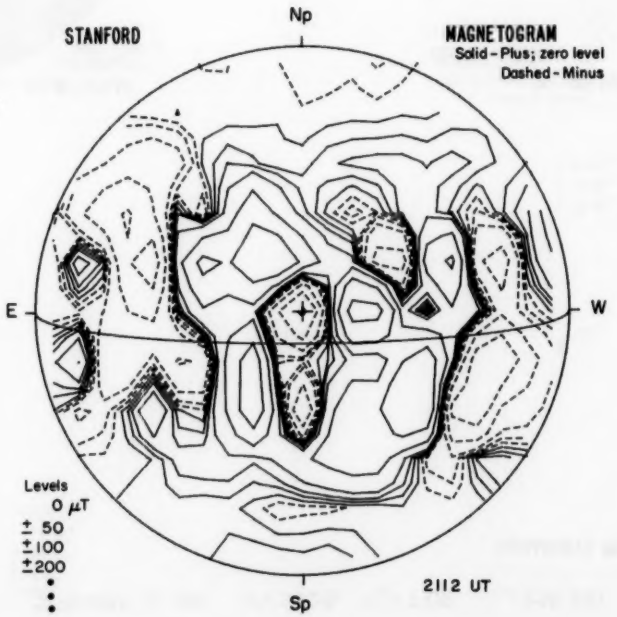
1651 UT

CALCIUM REPORT

GOOD	JA

42- 0700-3.5
44- 0700-3.0
45- 0400-3.0
46- 0300-3.0
48- 0700-2.5
50- 3100-3.0
53- 2000-3.0
54- 0300-3.0
55- 1000-3.0
56- 1800-3.5
57- 0400-3.5
58- 1500-3.0
59- 0300-3.0
60- 0400-3.0
61- 0600-3.5
62- 0300-2.5
63- 1100-3.5
64- 0200-2.5

STANFORD



MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

2112 UT

97
Sep 81

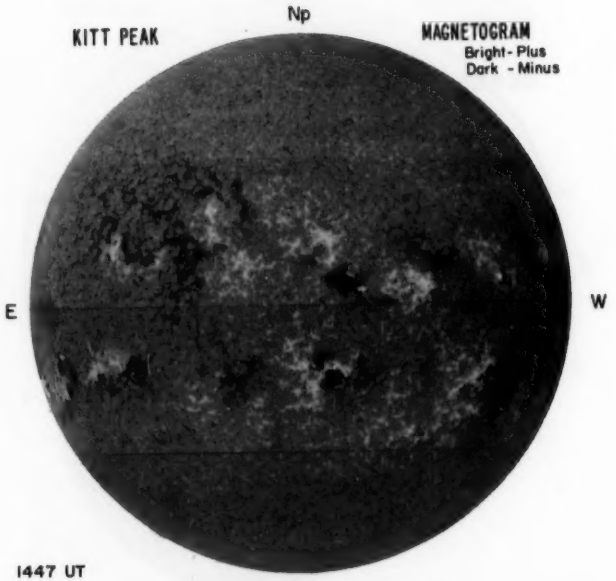
SEPTEMBER 23, 1981 (P= 25.25, B_o= 7.02, L_o= 255.26)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

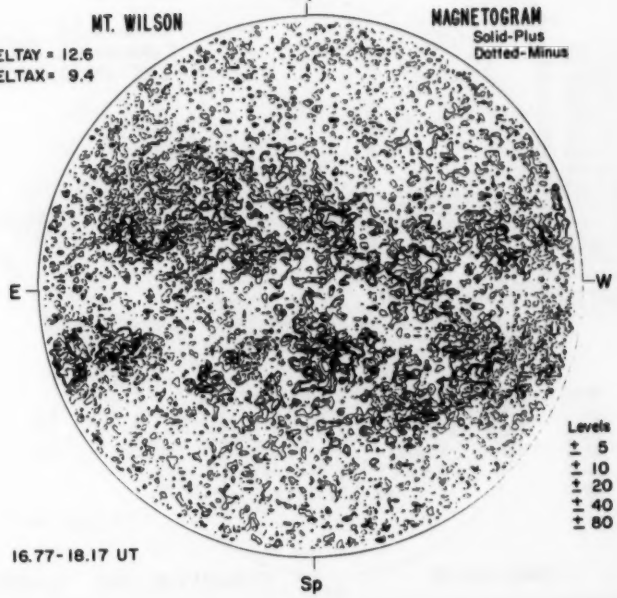


MAGNETOGRAM
Bright - Plus
Dark - Minus

1447 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.4



MAGNETOGRAM
Solid-Plus
Dotted-Minus

Levels
± 5
± 10
± 20
± 40
± 80

16.77 - 18.17 UT

23

1447 UT

Sp

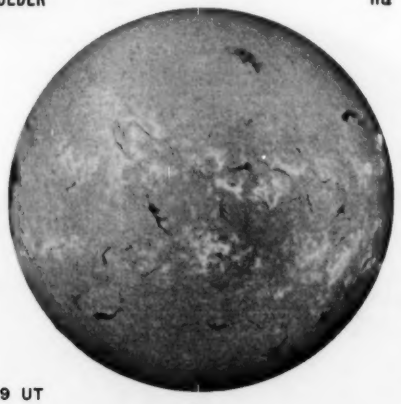
Sp

23

BOULDER

Np

Hα



E

W

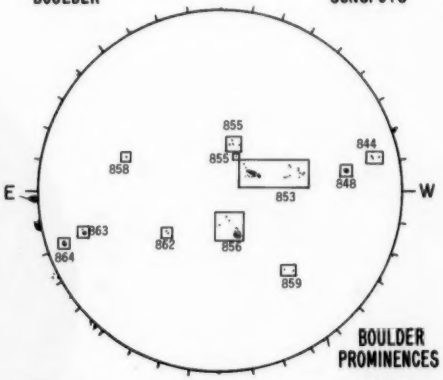
1429 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1400 UT

Sp

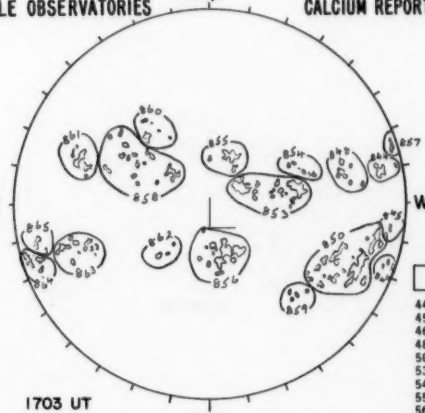
BOULDER PROMINENCES

1429 UT

HALE OBSERVATORIES

Np

CALCIUM REPORT



E

W

1703 UT

Sp

GOOD	JA
44- 0600-3.5	
45- 0300-3.0	
46- 0300-3.0	
48- 0700-3.0	
50- 3900-3.0	
53- 2000-3.5	
54- 0300-3.0	
55- 0700-3.0	
56- 1800-3.0	
57- 0300-3.5	
58- 1900-3.0	
59- 3000-3.0	
60- 0400-2.5	
61- 0900-3.0	
62- 0200-3.0	
63- 1200-3.5	
64- 0700-3.0	
65- 0400-3.5	

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

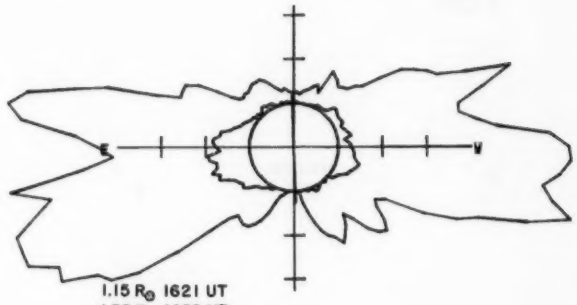
±100

±200

Sp

SEPTEMBER 24, 1981 (P= 25.37, B_o = 6.99, L_o = 242.06)

SACRAMENTO PEAK Np CORONA 5303 Å

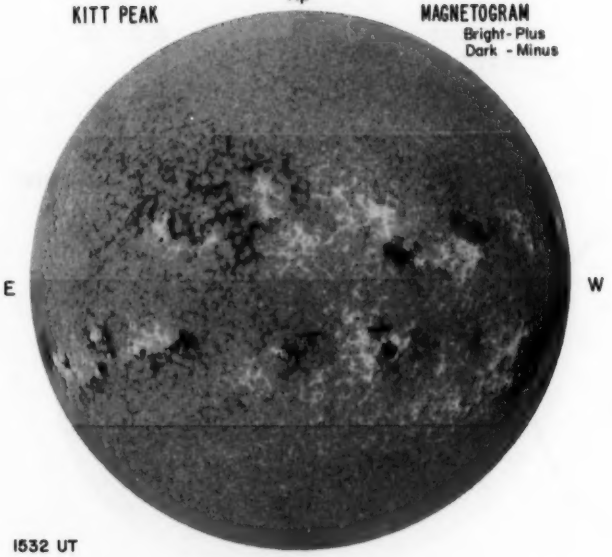


1.15 $R_\odot$ 1621 UT
1.35 $R_\odot$ 1458 UT
1.55 $R_\odot$

Sp

Np

KITT PEAK Np MAGNETOGRAM Bright-Plus Dark-Minus



E W

1532 UT

Sp

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
+ 5
+ + 10
+ + + 20
+ + + + 40
+ + + + + 80

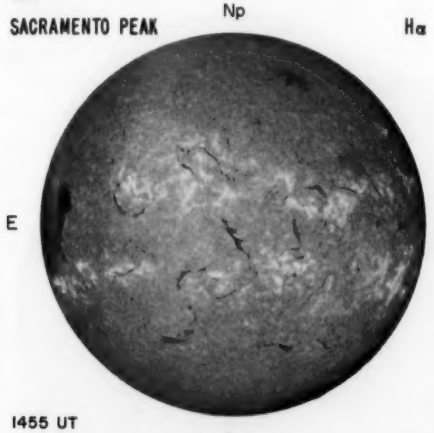
Sp

24

SACRAMENTO PEAK Np H_α BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM PLAGE

24

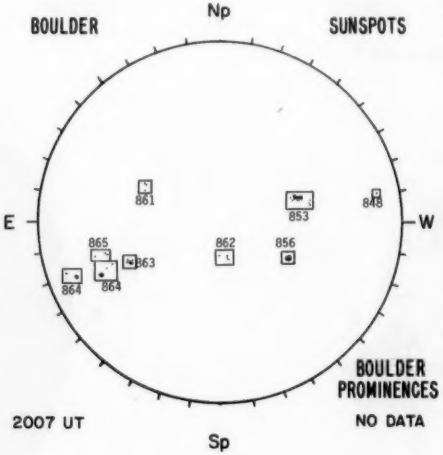
SACRAMENTO PEAK



Hα

1455 UT

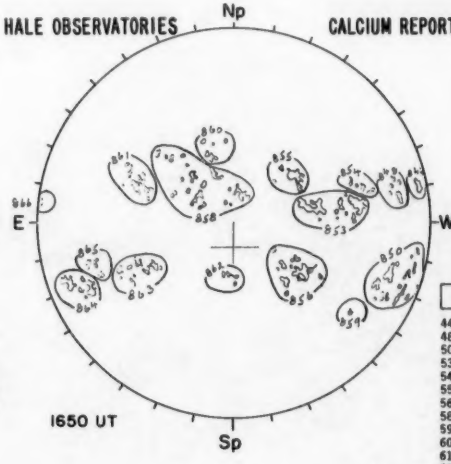
BOULDER



SUNSPOTS

2007 UT

HALE OBSERVATORIES



CALCIUM REPORT

1650 UT

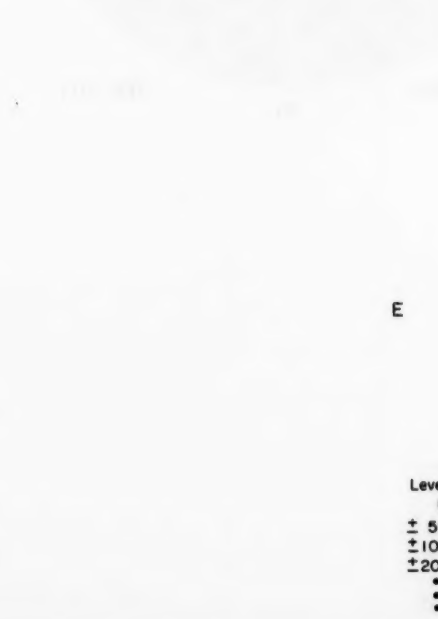
GOOD	JA

44- 0700-3.5
48- 0700-3.0
50- 2500-3.0
53- 2000-3.5
54- 0300-3.0
55- 0800-3.0
56- 1400-3.5
58- 2300-3.0
59- 0100-3.0
60- 0500-3.0
61- 1000-3.5
62- 0300-3.0
63- 1000-3.5
64- 1200-3.5
65- 0500-3.5
66- 0200-3.0

BOULDER PROMINENCES

NO DATA

STANFORD



MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NO DATA

Levels

0 μT

± 50

±100

±200

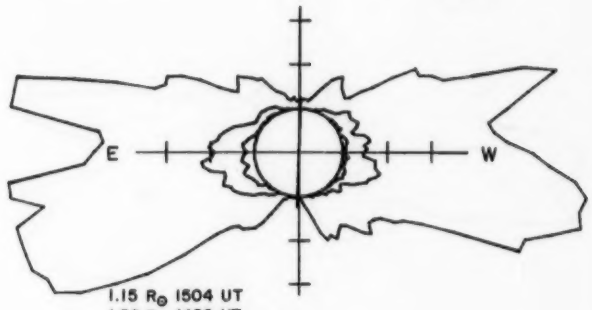
•

•

•

SEPTEMBER 25, 1981 (P= 25.48, B_o = 6.96, L_o = 228.86)

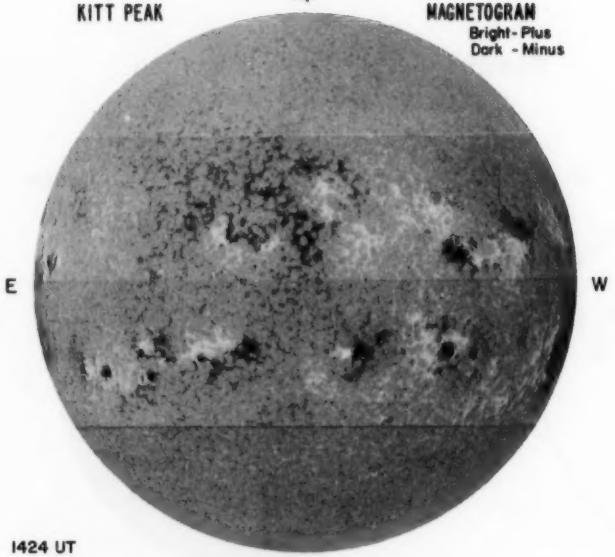
SACRAMENTO PEAK Np CORONA
5303 Å



1.15 $R_\odot$ 1504 UT
1.35 $R_\odot$ 1428 UT
1.55 $R_\odot$ 1437 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



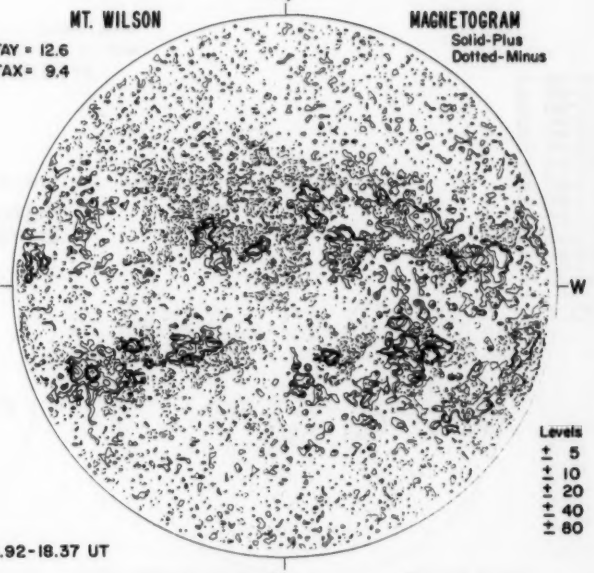
1424 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.4



16.92-18.37 UT

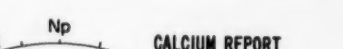
Sp

25

BOULDER Np Hα

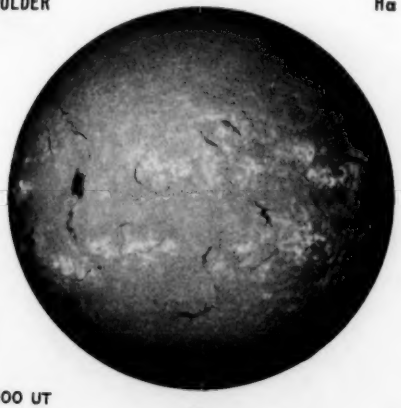
BOULDER Np

SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT



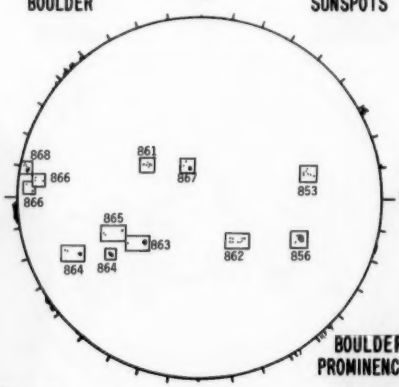
25

BOULDER Np Hα



2000 UT Sp

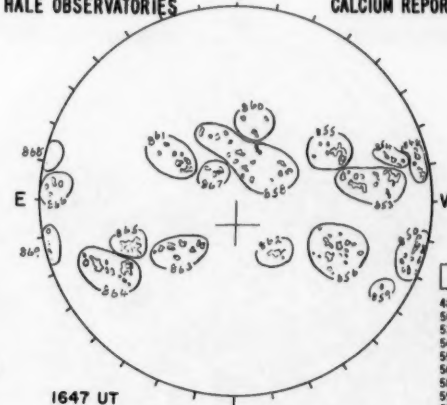
BOULDER Np SUNSPOTS



1900 UT Sp 1950 UT

BOULDER PROMINENCES

HALE OBSERVATORIES Np CALCIUM REPORT



1647 UT Sp

FAIR	JA

48- 0700-2.5
50- 1200-3.0
53- 1400-3.5
54- 0400-3.0
55- 0800-3.0
56- 1300-3.5
58- 1600-3.0
59- 0100-2.5
60- 0300-3.0
61- 0800-3.0
62- 0300-3.5
63- 0800-3.5
64- 1700-3.5
65- 0700-3.5
66- 0500-3.5
67- 0300-3.0
68- 0200-3.0
69- 0400-3.0

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E NO DATA W

Levels
0 μT
± 50
±100
±200

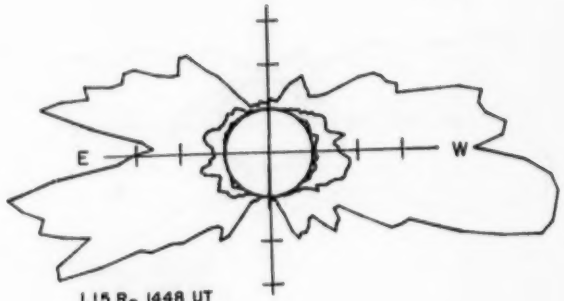
Sp

SEPTEMBER 26, 1981 (P= 25.58, B_o = 6.92, L_o = 215.66)

SACRAMENTO PEAK

Np

CORONA
5303 Å



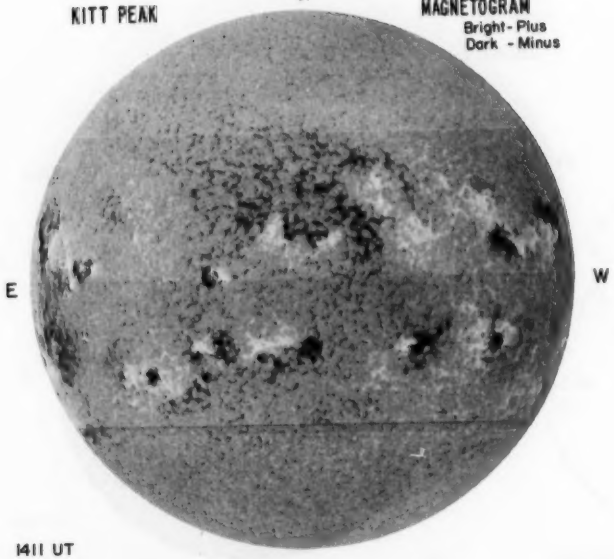
1.15 $R_\odot$ 1448 UT
1.35 $R_\odot$ 1428 UT
1.55 $R_\odot$ 1437 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1411 UT

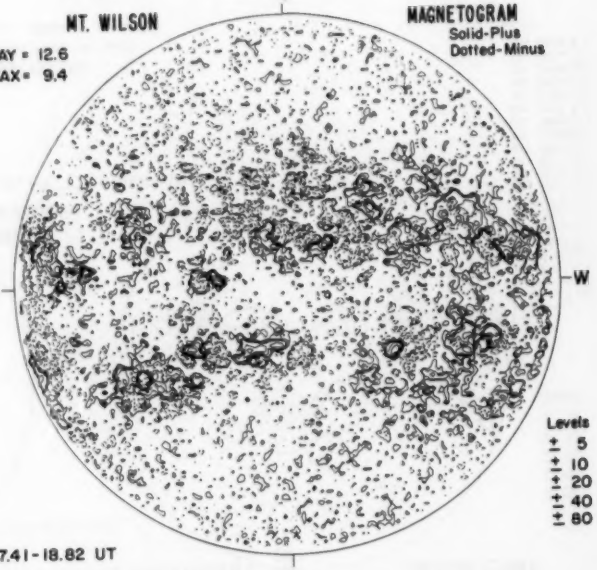
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.4

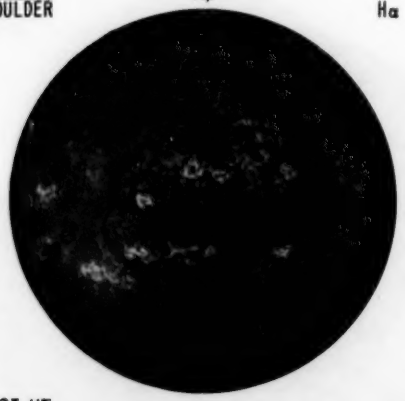


Levels
± 5
± 10
± 20
± 40
± 80

17.41 - 18.82 UT

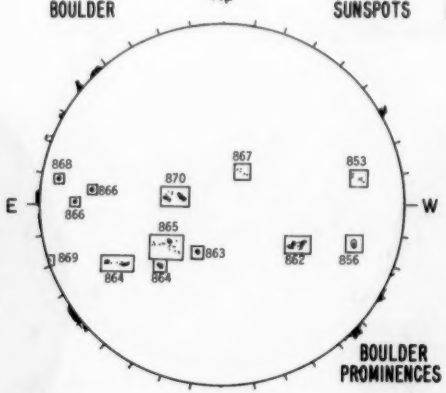
Sp

BOULDER Hα



1803 UT

BOULDER SUNSPOTS

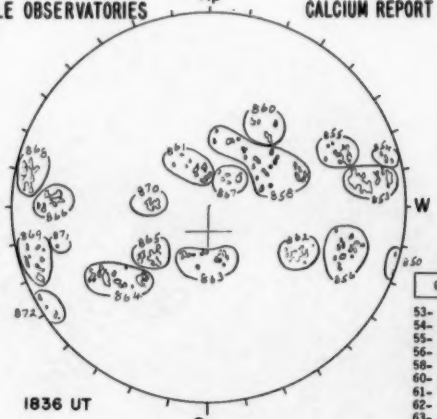


1820 UT

BOULDER PROMINENCES

1803 UT

HALE OBSERVATORIES CALCIUM REPORT

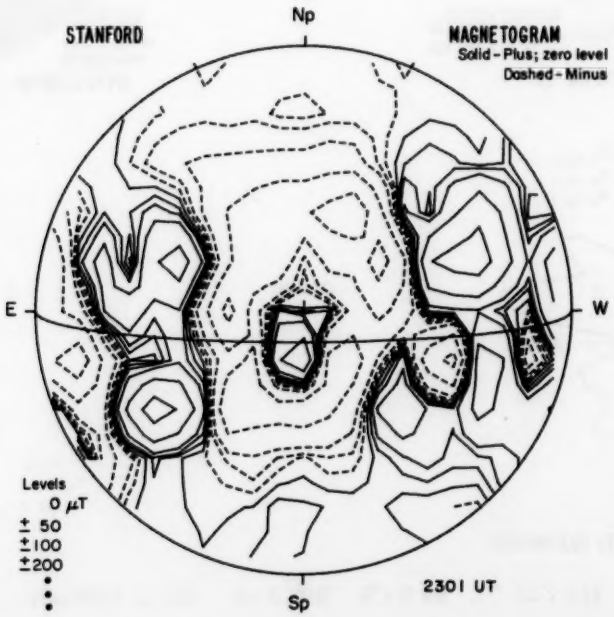


1836 UT

	GOOD	JA
53-	1800	3.0
54-	0300	2.5
55-	0900	3.0
56-	1000	3.0
58-	1400	3.0
60-	0400	3.0
61-	0600	3.0
62-	0800	3.0
63-	0700	3.5
64-	1500	3.5
65-	0700	3.5
66-	0800	3.5
67-	0400	3.0
68-	1100	3.5
69-	1000	3.5
70-	0400	3.5
71-	0100	3.0
72-	0300	3.0

STANFORD MAGNETOGRAM

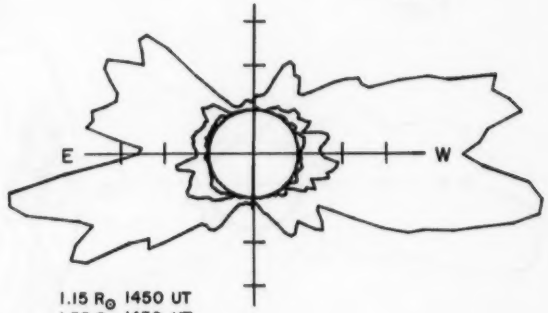
Solid - Plus; zero level
Dashed - Minus



2301 UT

SEPTEMBER 27, 1981 (P= 25.68, B_o = 6.88, L_o = 202.47)

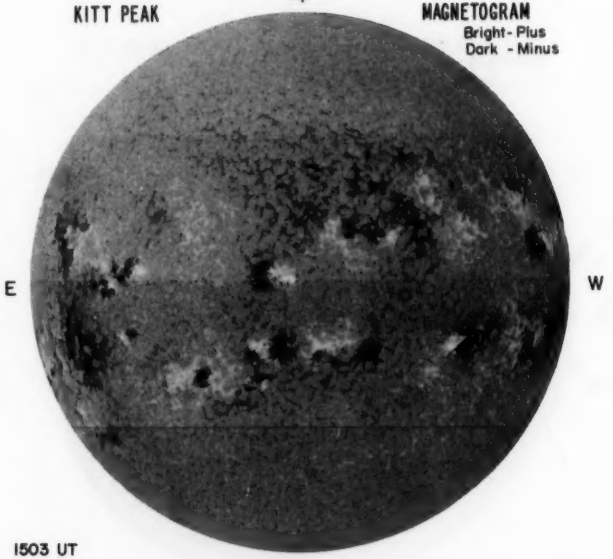
SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1450 UT
1.35 $R_\odot$ 1430 UT
1.55 $R_\odot$ 1439 UT

Sp

KITT PEAK Np MAGNETOGRAM Bright-Plus Dark-Minus



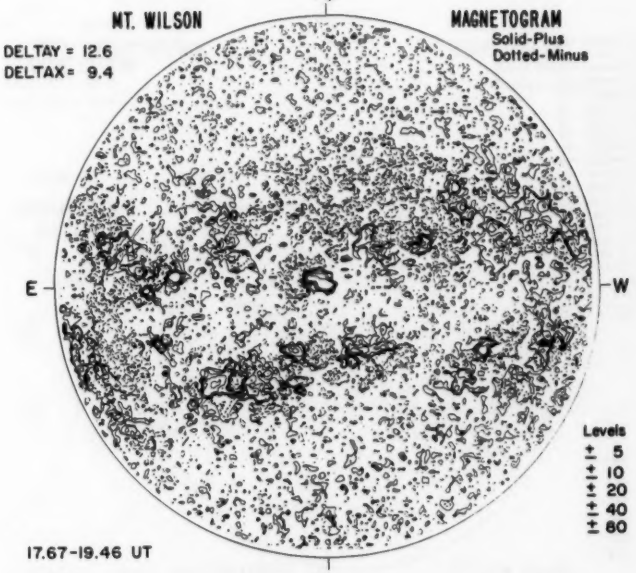
1503 UT

Sp

Np

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.6
DELTAX = 9.4

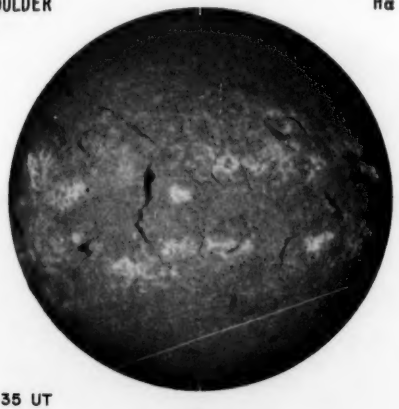


17.67-19.46 UT

Sp

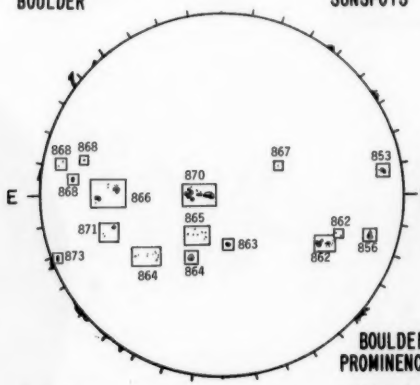
27

BOULDER Hα



1435 UT

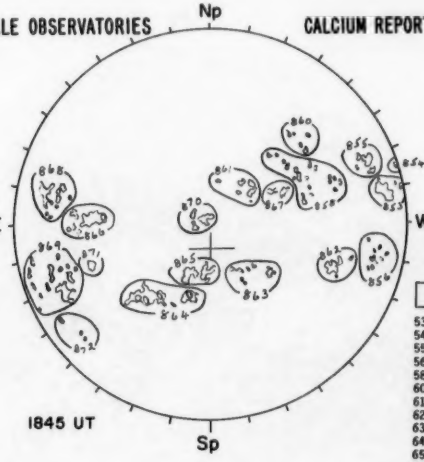
BOULDER SUNSPOTS



1415 UT 1435 UT

BOULDER PROMINENCES

HALE OBSERVATORIES CALCIUM REPORT



1845 UT

FAIR	JA

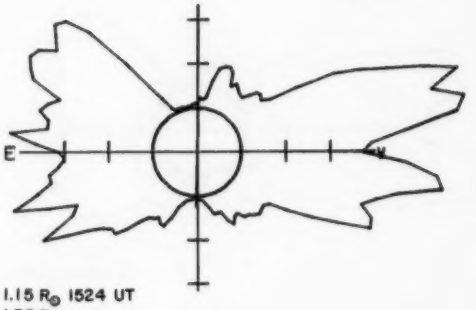
53- 1700-3.5
54- 0100-2.5
55- 0800-3.5
56- 0500-3.0
58- 1200-3.0
60- 0300-3.0
61- 0500-3.0
62- 0700-4.0
63- 0600-3.5
64- 1800-3.5
65- 1100-3.5
66- 2000-3.5
67- 0400-3.0
68- 1400-3.5
69- 2600-3.0
70- 0600-3.5
71- 0300-3.0
72- 0300-3.0

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

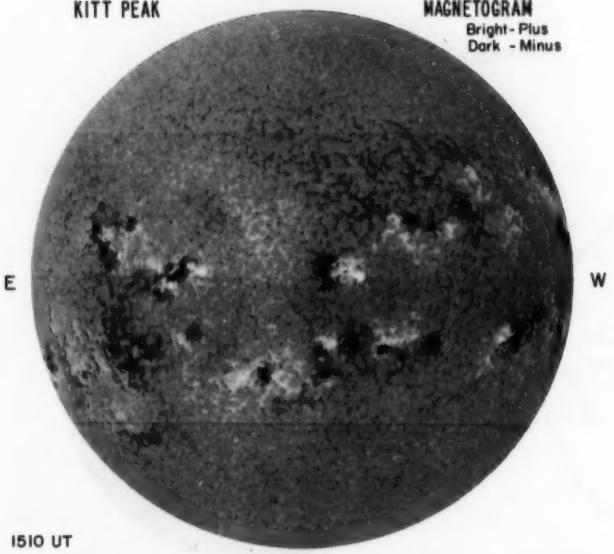
SEPTEMBER 28, 1981 (P= 25.77, B_o= 6.84, L_o= 189.27)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1524 UT
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK Np MAGNETOGRAM Bright - Plus Dark - Minus

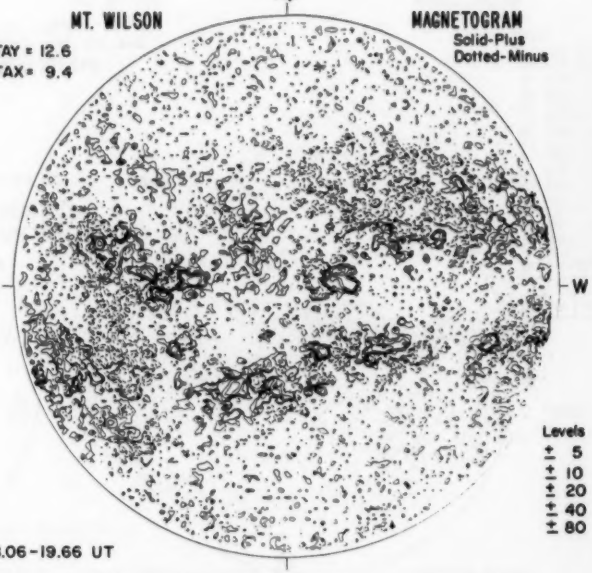


1510 UT

Sp

Sp Np MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.6
DELTAX = 9.4



18.06 - 19.66 UT

Sp

28

BOULDER Np Hα: BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

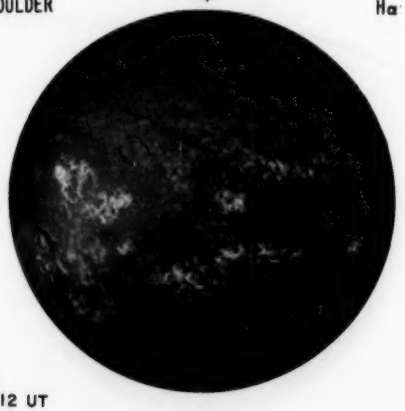
Sp

28

BOULDER

Np

Hα



E

W

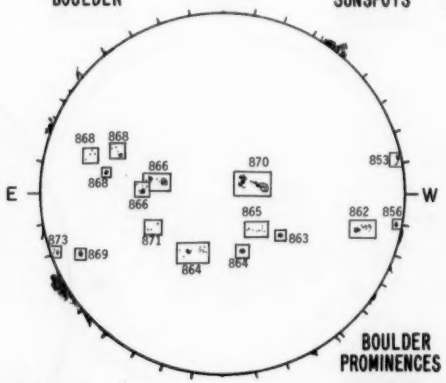
1912 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1630 UT

Sp

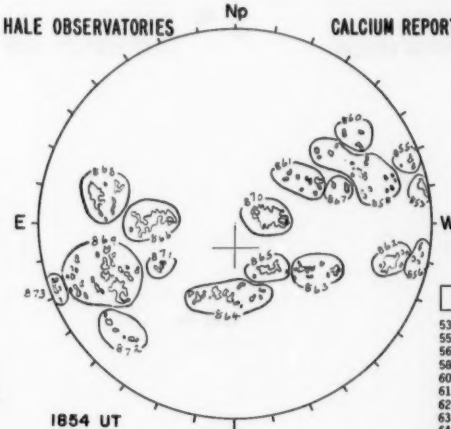
BOULDER PROMINENCES

1912 UT

HALE OBSERVATORIES

Np

CALCIUM REPORT



E

W

1854 UT

Sp

FAIR	JA

53- 0800-3.5
55- 0400-3.0
56- 0400-3.0
58- 1700-3.0
60- 0400-3.0
61- 0700-3.0
62- 1200-3.5
63- 0700-3.5
64- 1500-3.5
65- 0600-3.5
66- 2000-3.5
67- 0300-3.0
68- 1600-3.5
69- 3000-3.0
70- 1600-3.5
71- 0300-3.0
72- 0500-3.0
73- 0600-3.0

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

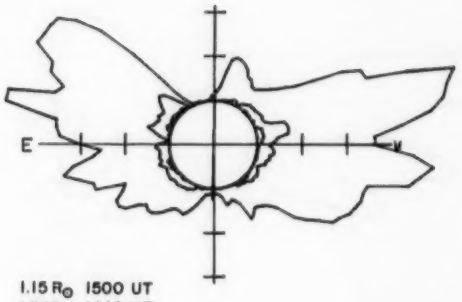
•

•

Sp

SEPTEMBER 29, 1981 (P= 25.86, B_o= 6.80, L_o= 176.07)

SACRAMENTO PEAK Np CORONA 5303 Å

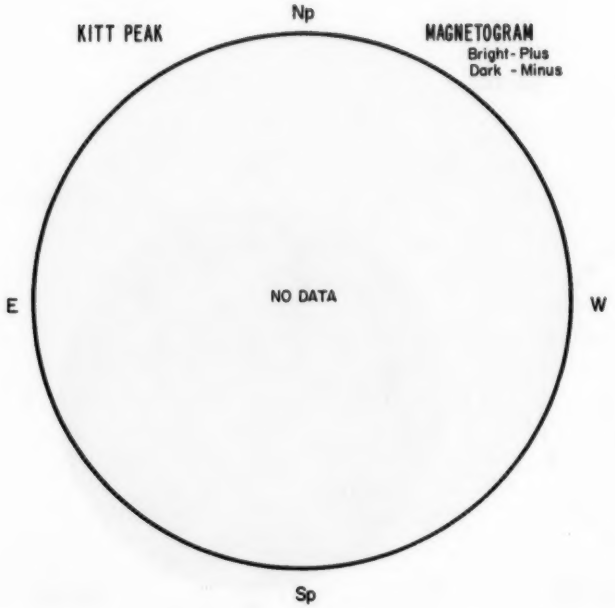


1.15 $R_\odot$ 1500 UT
1.35 $R_\odot$ 1440 UT
1.55 $R_\odot$ 1449 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

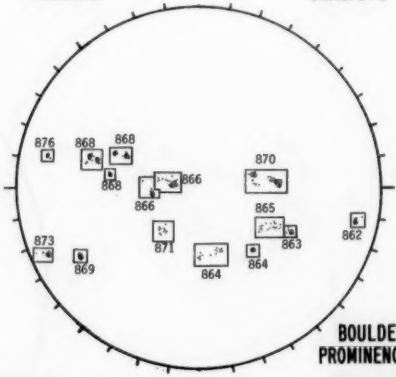
Levels
± 5
± 10
± 20
± 40
± 80

SACRAMENTO PEAK Np Hα

E W

1325 UT Sp

HOLLOMAN Np SUNSPOTS



E W E W

1800 UT Sp

HALE OBSERVATORIES Np CALCIUM REPORT

NO DATA W

BOULDER PROMINENCES

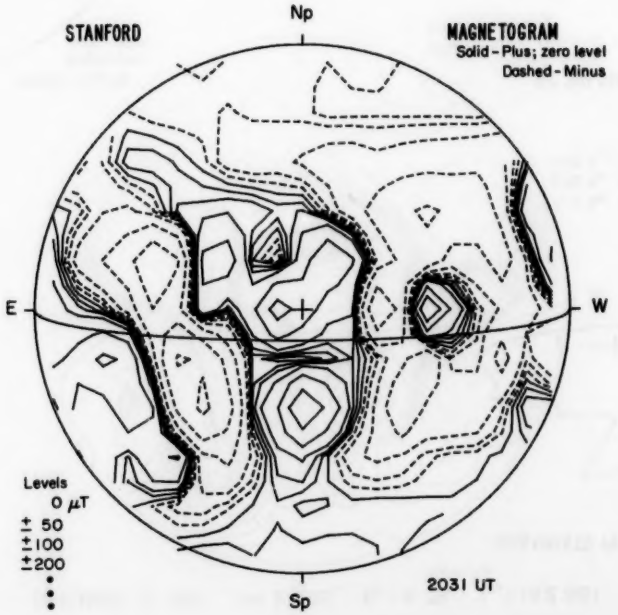
NO DATA

Sp

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

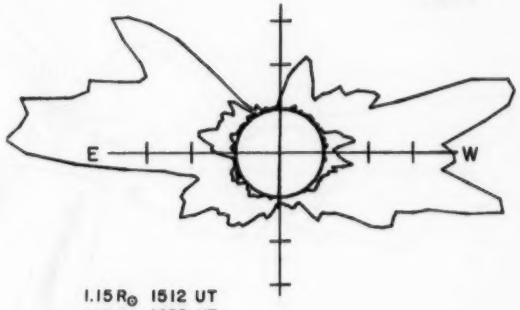
Dashed - Minus



2031 UT Sp

SEPTEMBER 30, 1981 (P= 25.93, B_o = 6.76, L_o = 162.88)

SACRAMENTO PEAK Np CORONA 5303 Å

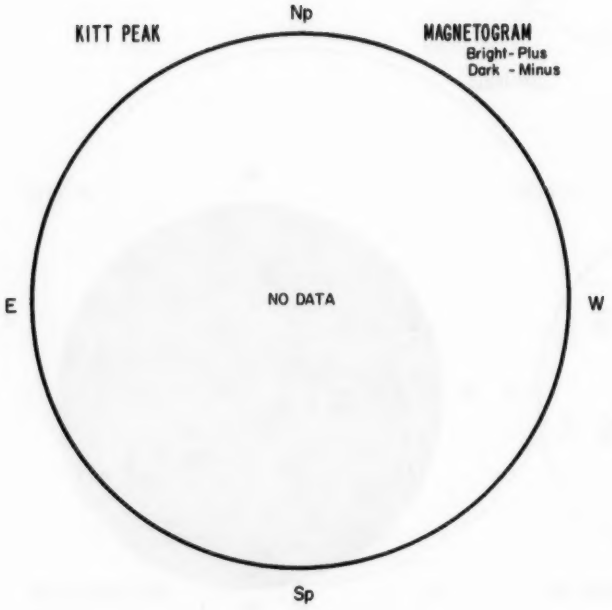


1.15 $R_\odot$ 1512 UT
1.35 $R_\odot$ 1452 UT
1.55 $R_\odot$ 1501 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

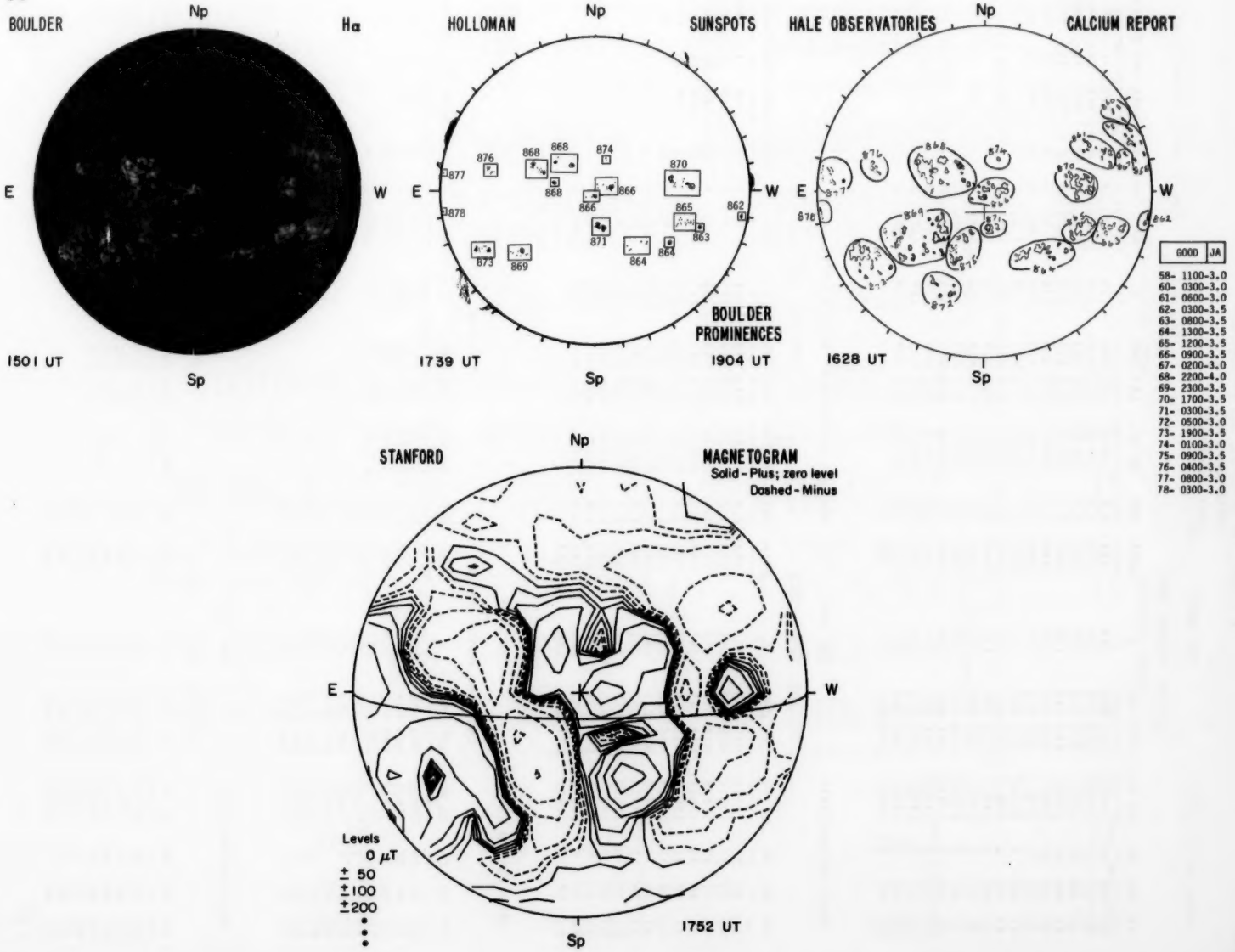
DELTAY =
DELTAX =

Levels
± 5
± 10
± 20
± 40
± 80

30

Np Np Np

30


BOULDER
Np
Hα
E
W
Sp
1501 UT
HOLLOMAN
SUNSPOTS
876
868
868
874
870
877
868
866
866
865
862
878
871
863
873
869
864
864
BOULDER
PROMINENCES
1739 UT
1904 UT
HALE OBSERVATORIES
CALCIUM REPORT
1628 UT
GOOD
JA
58- 1100-3.0
60- 0300-3.0
61- 0600-3.0
62- 0300-3.5
63- 0800-3.5
64- 1300-3.5
65- 1200-3.5
66- 0900-3.5
67- 0200-3.0
68- 2200-4.0
69- 2300-3.5
70- 1700-3.5
71- 0300-3.5
72- 0500-3.0
73- 1900-3.5
74- 0100-3.0
75- 0900-3.5
76- 0400-3.5
77- 0800-3.0
78- 0300-3.0
STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Levels
0 μT
± 50
±100
±200
1752 UT

REGIONS OF SOLAR ACTIVITY

SEPTEMBER 1981

HALE REGION 17817 CMP DATE 1.6

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	26	17817	S11	E80	176	400	3.0	22520	S12	E80	176	AP	2	H	420	2	EKI
81	08	27	17817	S13	E69	174	1500	3.5	22520	S12	E68	175	(AP)	4	H	360	20	FAI
81	08	28	17817	S13	E54	175	1500	3.5	22520	S12	E52	178	(B)	5	H	950	24	FKO
81	08	29	17817	S13	E40	176	1800	3.5	22520	S12	E39	178	(B)	4	H	710	31	FKI
81	08	30	17817	S13	E27	175	1800	3.5	22520	S13	E26	178	(D)	5	H	760	37	FKI
81	08	31	17817	S13	E12	177	1800	3.0	22520	S12	E13	178	(BY)	5	H	980	54	FKI
81	09	1	17817	S13	W01	177	2000	3.5	22520	S12	W01	179	(D)	5				
81	09	2	17817	S15	W13	175	2000	3.5	22520	S12	W15	180	(BY)	5				
81	09	3	17817	S14	W24	173	2900	3.5	22520	S13	W28	179	(BY)	4				
81	09	3	17817	S14	W24	173	2900	3.5	22542	S15	W15	166	(AF)	2				
81	09	4	17817	S14	W42	176	2800	4.0	22542	S15	W29	167	(AP)	2				
81	09	4	17817	S14	W42	176	2800	4.0	22520	S13	W43	181	(BP)	5				
81	09	5	17817	S14	W52	174	2600	3.0	22520	S12	W55	179	(BY)	4				
81	09	5	17817	S14	W52	174	2600	3.0	22542	S15	W41	165	(AF)	2				
81	09	6	17817	S14	W64	173	2100	3.5	22520	S12	W69	180	(BY)	4				
81	09	7	17817	S14	W75	171	900	3.5										

HALE REGION 17818 CMP DATE 2.8 NEW, IN LOCATION OF REGION 17782

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	27	17818	N15	E80	163	200	3.0	22521	N16	E79	164	X	3	H	40	1	HAX
81	08	28	17818	N15	E68	161	600	3.0	22521	N16	E68	162	X	3	H	50	5	DSO
81	08	29	17818	N14	E55	161	600	3.5	22521	N16	E55	162	(B)	4	H	100	10	DSO
81	08	30	17818	N14	E41	161	600	3.5	22521	N15	E41	163	(BY)	4	H	150	18	ESI
81	08	31	17818	N15	E26	163	600	3.5	22521	N16	E28	163	(B)	5	H	150	15	ESO
81	08	31	17818	N15	E26	163	600	3.5	22535	N11	E23	168	(B)	2	H		2	BXO
81	09	1	17818	N15	E15	161	700	3.5	22521	N15	E16	162	(BY)	4				
81	09	2	17818	N15	E01	161	700	3.0	22521	N15	E03	162	(B)	4				
81	09	3	17818	N15	W13	162	900	3.0	22521	N15	W11	162	(B)	4				
81	09	4	17818	N16	W28	162	800	3.0	22521	N16	W28	166	(AP)	4				
81	09	5	17818	N17	W38	160	900	3.0	22521	N16	W41	165	(B)	4				
81	09	6	17818	N17	W52	161	700	3.0	22521	N15	W54	165	(AP)	4				
81	09	7	17818	N17	W62	158	600	3.0										

HALE REGION 17821 CMP DATE 3.5

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	29	17821	S08	E59	157	100	2.5	22525	S08	E62	155	(AP)	3	H	10	2	AXX
81	08	30	17821	S08	E48	154	100	3.0	22525	S07	E48	156	(AP)	4	B	10	1	AXX
81	08	31	17821	S08	E35	154	300	3.0	22525	S07	E34	157	(AP)	3	H		2	AXX
81	09	1	17821	S08	E23	153	300	3.0	22525	S07	E20	158	(AP)	2				
81	09	2	17821	S08	E09	153	300	3.0										
81	09	3	17821	S07	W04	153	200	3.0										
81	09	4	17821	S07	W18	152	200	2.5										
81	09	5	17821	S08	W32	154	200	2.0										
81	09	6	17821	S08	W42	151	200	2.5										
81	09	7	17821	S09	W55	151	100	2.0										

HALE REGION 17819 CMP DATE 3.6

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	28	17819	N20	E76	153	100	3.0		N19	E75				H	10	1	AXX
81	08	29	17819	N18	E64	152	300	3.0		N18	E62				H		1	AXX
81	08	30	17819	N19	E50	152	400	3.0	22529	N19	E48	156	(AP)	3	H	10	1	AXX
81	08	31	17819	N19	E35	154	400	3.0		N15	E30				H	150	15	ESO
81	09	1	17819	N19	E24	152	400	3.0										
81	09	2	17819	N19	E13	149	200	3.0										
81	09	3	17819	N20	W03	152	200	2.5										

CONT

REGIONS OF SOLAR ACTIVITY

SEPTEMBER 1981

HALE REGION 17819 (CONT) CMP DATE 3.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	4	17819	N20	W18	152	100	3.0										
81	09	5	17819	N21	W29	151	200	3.0										
81	09	6	17819	N22	W43	152	100	2.5										

HALE REGION 17822 CMP DATE 4.2 RETURN OF REGION 17776 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	29	17822	S25	E66	150	400	3.0	22524	S24	E69	148	AP	2	H	20	2	CSO
81	08	30	17822	S27	E54	148	800	3.5	22524	S25	E56	148	(AP)	3	H	50	3	CSO
81	08	31	17822	S27	E41	148	1000	3.0	22524	S25	E43	148	(BP)	4	H	60	1	HSX
81	09	1	17822	S26	E29	147	1400	3.5	22524	S25	E29	149	(BP)	5				
81	09	2	17822	S26	E17	145	1200	3.0	22524	S25	E16	149	(AP)	4				
81	09	3	17822	S26	E05	144	1400	3.0	22524	S25	E03	148	(AP)	4				
81	09	4	17822	S26	W10	144	800	3.5	22524	S25	W11	149	(AP)	4				
81	09	5	17822	S26	W21	143	800	3.0	22524	S25	W24	148	(AP)	3				
81	09	6	17822	S26	W34	143	1000	3.0	22524	S25	W36	147	(AP)	3				
81	09	7	17822	S26	W45	141	1000	3.0										
81	09	8	17822						22524	S25	W63	148	AP	1				

HALE REGION 17820 CMP DATE 4.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	29	17820	N14	E79	137	600	2.5		N12	E84				B	30	1	HSX
81	08	30	17820	N13	E69	133	900	3.0	22531	N18	E70	134	(AF)	2				
81	08	31	17820	N13	E50	139	900	3.0	22531	N18	E52	139	(B)	4	H	10	3	AXX
81	09	1	17820	N11	E39	137	2000	3.5	22531	N18	E39	139	(B)	3				
81	09	2	17820	N12	E25	137	2000	3.5	22531	N18	E28	137	(B)	3				
81	09	3	17820	N14	E10	139	1100	3.0	22531	N18	E14	137	(B)	3				
81	09	4	17820	N14	W05	139	700	3.0	22531	N19	W00	138	(AP)	2				
81	09	5	17820	N15	W16	138	700	3.0										
81	09	6	17820	N15	W30	139	700	3.0										
81	09	7	17820	N15	W42	138	700	3.0										

HALE REGION 17823 CMP DATE 4.9 NEW, IN LOCATION OF REGION 17775

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	30	17823	N06	E71	131	400	3.0	22530	N07	E72	132	(B)	3	H	150	3	DAO
81	08	31	17823	N08	E58	131	700	3.0	22530	N07	E59	132	(B)	4	H	100	9	DSO
81	09	1	17823	N08	E46	130	700	3.0	22530	N06	E45	133	(B)	4				
81	09	2	17823	N07	E32	130	1300	3.0	22530	N07	E30	135	(B)	4				
81	09	3	17823	N07	E16	133	1200	3.0	22530	N07	E17	134	(BP)	4				
81	09	4	17823	N07	E00	134	1000	3.5	22530	N08	E03	135	(B)	4				
81	09	5	17823	N07	W11	133	1000	3.5	22530	N08	W11	135	(BP)	4				
81	09	6	17823	N07	W25	134	900	3.5	22530	N08	W24	135	(BP)	4				
81	09	7	17823	N07	W36	132	900	3.0										
81	09	8	17823						22530	N07	W51	136	(AP)	4				
81	09	9	17823						22530	N07	W65	137	(AP)	4				
81	09	10	17823						22530	N07	W77	135	(AP)	2				

REGIONS OF SOLAR ACTIVITY

SEPTEMBER 1981

HALE REGION 17824 CMP DATE 4.9 RETURN OF LEADING PART OF REGION 17777 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	30	17824	S11 E68	134	1000	3.5	22533	S10 E74	130	(AF)	3	H	330	2	HAX
81	08	31	17824	S10 E58	131	2400	3.5	22533	S10 E60	131	(D)	4	H	360	5	CKO
81	09	1	17824	S10 E40	136	2400	3.5	22533	S10 E47	131	(D)	4				
81	09	2	17824	S10 E28	134	2800	3.5	22540	S06 E38	127	(AP)	2				
81	09	2	17824	S10 E28	134	2800	3.5	22533	S10 E32	133	(D)	4				
81	09	3	17824	S09 E18	131	2800	3.5	22540	S06 E25	126	(B)	3				
81	09	3	17824	S09 E18	131	2800	3.5	22533	S10 E20	131	(B)	5				
81	09	4	17824	S09 E00	134	3100	3.5	22533	S10 E07	131	(D)	5				
81	09	4	17824	S09 E00	134	3100	3.5	22540	S06 E11	127	(B)	4				
81	09	5	17824	S09 W12	134	3600	3.5	22540	S05 W13	137	(B)	4				
81	09	5	17824	S09 W12	134	3600	3.5	22533	S10 W06	130	(D)	4				
81	09	6	17824	S08 W24	133	3700	3.5	22533	S10 W19	130	(D)	5				
81	09	6	17824	S08 W24	133	3700	3.5	22540	S05 W18	129	(BP)	4				
81	09	7	17824	S08 W37	133	3600	3.5									
81	09	8	17824					22540	S05 W46	131	(AP)	3				
81	09	8	17824					22533	S10 W46	131	(D)	4				
81	09	9	17824					22533	S10 W59	131	(BY)	5				
81	09	10	17824					22533	S10 W72	130	(D)	3				

HALE REGION 17827 CMP DATE 5.4 RETURN OF REGION 17775 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	30	17827					22532	N11 E78	126	(AP)	4	H	150	3	DAO
81	08	31	17827					22532	N11 E64	127	(BF)	5	H	120	1	HSX
81	09	1	17827					22532	N12 E50	128	(AP)	5				
81	09	2	17827					22532	N11 E37	128	(BP)	5				
81	09	3	17827	N12 E24	125	300	3.0	22532	N12 E24	127	(BP)	4				
81	09	4	17827	N12 E07	127	300	2.5	22532	N12 E11	127	(AP)	4				
81	09	5	17827	N12 W05	127	300	2.5	22532	N11 W03	127	(BY)	5				
81	09	5	17827	N12 W05	127	300	2.5	22548	N13 E08	116	(B)	3				
81	09	6	17827	N12 W17	126	300	2.5	22532	N12 W26	137	(BP)	5				
81	09	6	17827	N12 W17	126	300	2.5	22548	N12 W16	127	(AP)	2				
81	09	7	17827	N13 W32	128	300	2.5									
81	09	8	17827					22532	N12 W42	127	(AP)	4				
81	09	9	17827					22532	N11 W57	129	(BY)	4				
81	09	10	17827	N11 W74	130	300	3.0	22532	N11 W69	127	(AP)	3				
81	09	11	17827					22532	N12 W82	127	(AP)	2				

HALE REGION 17825 CMP DATE 6.2 RETURN OF REGION 17791 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	30	17825					22534	S15 E80	124	AP	2	H	240	1	HSX
81	08	31	17825	S17 E69	120	1500	3.0	22534	S16 E69	122	(AP)	4	H	220	1	HKX
81	09	1	17825	S18 E55	121	1500	3.5	22534	S17 E55	123	(D)	4				
81	09	2	17825	S24 E48	114	1100	3.5	22534	S17 E45	120	(BY)	5				
81	09	3	17825	S20 E33	116	1700	3.0	22534	S17 E30	121	(BP)	5				
81	09	3	17825	S20 E33	116	1700	3.0	22543	S19 E38	113	(B)	3				
81	09	4	17825	S19 E18	116	1300	3.0	22543	S19 E26	112	(AF)	3				
81	09	4	17825	S19 E18	116	1300	3.0	22534	S17 E15	123	(BP)	5				
81	09	5	17825	S19 E05	117	1300	3.0	22534	S17 E02	122	(D)	5				
81	09	5	17825	S19 E05	117	1300	3.0	22543	S19 E13	111	(AF)	3				
81	09	6	17825	S18 W09	118	1800	3.5	22543	S19 W00	111	(AF)	4				
81	09	6	17825	S18 W09	118	1800	3.5	22534	S17 W11	122	(BY)	5				
81	09	7	17825	S18 W22	118	2000	3.5									
81	09	8	17825					22543	S18 W28	105	(AF)	2				
81	09	8	17825					22534	S17 W38	123	(BP)	5				
81	09	9	17825					22534	S17 W51	123	(AP)	5				
81	09	9	17825					22543	S18 W33	105	AF	1				
81	09	10	17825	S17 W64	120	1000	3.0	22564	S22 W49	107	(AF)	2				
81	09	10	17825	S17 W64	120	1000	3.0	22534	S17 W65	123	(BF)	4				
81	09	10	17825	S17 W64	120	1000	3.0	22543	S17 W43	101	(AP)	3				
81	09	11	17825	S17 W68	112	800	3.0	22534	S17 W79	124	(AP)	3				
81	09	11	17825	S17 W68	112	800	3.0	22543	S17 W59	104	(B)	4				
81	09	12	17825	S17 W72	103	500	3.5	22543	S17 W72	104	(B)	3				
81	09	13	17825					22543	S17 W80	99	AF	2				

REGIONS OF SOLAR ACTIVITY

SEPTEMBER 1981

HALE REGION 17826 CMP DATE 6.2 RETURN OF TRAILING PART OF REGION 17777 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	1	17826	S10 E56	120	1100	3.0		22538	S05 E70	108	(B)	3				
81	09	2	17826	S12 E41	121	900	3.0		22541	S08 E50	115	(AF)	2				
81	09	3	17826	S11 E32	117	1000	3.0										
81	09	4	17826	S10 E17	117	1100	3.0										
81	09	5	17826	S09 E05	117	1100	3.0		22550	S13 E12	112	(AF)	2				
81	09	5	17826	S09 E05	117	1100	3.0		22549	S08 E18	106	(AF)	2				
81	09	6	17826	S09 W07	116	1300	3.0										
81	09	7	17826	S09 W20	116	1200	3.0										
81	09	9	17826						22551	S07 W37	109	X	1				
81	09	10	17826	S08 W52	118	700	3.0		22561	S08 W50	108	X	1				
81	09	11	17826	S07 W69	113	200	2.5										

HALE REGION 17831 CMP DATE 6.2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	5	17831	N13 E05	117	200	2.0										
81	09	6	17831	N13 W07	116	300	2.5										
81	09	7	17831	N12 W13	109	200	2.0										

HALE REGION 17834 CMP DATE 8.3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	6	17834	N16 E17	92	200	3.0		22555	N17 E19	92	(B)	4				
81	09	7	17834	N17 E06	90	300	3.0										
81	09	8	17834						22555	N18 W07	92	(B)	3				
81	09	9	17834						22555	N18 W20	92	(B)	3				
81	09	10	17834	N17 W36	92	200	3.0		22555	N18 W36	94	(AP)	3				
81	09	11	17834	N17 W46	90	300	3.0		22555	N18 W49	94	(AP)	3				
81	09	12	17834	N19 W61	92	200	3.0										
81	09	13	17834	N18 W72	90	200	3.5		22575	N18 W75	94	X	2				
81	09	14	17834						22575	N19 W85	91	X	1				

HALE REGION 17829 CMP DATE 8.4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	4	17829	N27 E44	90	300	2.5		22545	N28 E47	91	(B)	4				
81	09	5	17829	N27 E33	89	500	3.0		22545	N28 E33	91	(B)	4				
81	09	6	17829	N27 E20	89	900	3.5		22545	N29 E20	91	(B)	4				
81	09	7	17829	N28 E05	91	1100	3.5										
81	09	8	17829						22545	N28 W05	90	(B)	4				
81	09	9	17829						22545	N28 W17	89	(D)	4				
81	09	10	17829	N28 W31	87	1300	3.5		22545	N29 W28	86	(B)	4				
81	09	11	17829	N29 W40	84	1400	3.5		22545	N30 W41	86	(B)	3				
81	09	12	17829	N29 W54	85	1200	3.0		22545	N31 W51	83	(B)	3				
81	09	13	17829	N31 W64	82	800	3.5		22545	N30 W65	84	(AP)	3				
81	09	14	17829	N32 W76	78	200	3.5										

REGIONS OF SOLAR ACTIVITY

SEPTEMBER 1981

HALE REGION 17828 CMP DATE 8.5

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	3	17828	S22	E56	83	200	3.0										
81	09	4	17828	S22	E45	88	200	3.0	22544	S24	E35	103	(AF)	2				
81	09	5	17828	S22	E36	86	200	3.0										

HALE REGION 17835 CMP DATE 9.5

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	6	17835	N19	E37	72	200	3.0	22556	N20	E38	73	(B)	4				
81	09	7	17835	N18	E24	72	100	2.0										
81	09	8	17835						22556	N19	E12	73	(B)	4				
81	09	9	17835						22555	N18	W05	77	(BP)	4				
81	09	10	17835	N18	W17	73	400	3.0	22556	N18	W17	75	(AP)	3				
81	09	11	17835	N17	W30	74	400	3.0	22556	N18	W31	76	(B)	3				
81	09	12	17835	N17	W45	76	300	3.0	22556	N17	W46	78	(AP)	3				
81	09	13	17835	N18	W56	74	300	3.0										
81	09	14	17835	N20	W71	73	200	3.0										

HALE REGION 17833 CMP DATE 10.5 NEW, IN LOCATION OF REGION 17784

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	5	17833	S13	E67	55	400	2.5	22553	S13	E67	57	(AP)	2				
81	09	6	17833	S14	E55	54	400	2.5	22553	S13	E53	58	(AP)	3				
81	09	7	17833	S14	E38	58	600	3.0										
81	09	8	17833						22553	S14	E28	57	(B)	3				
81	09	9	17833						22553	S14	E14	58	(BY)	3				
81	09	10	17833	S14	W04	60	500	3.0										
81	09	11	17833	S14	W18	62	300	3.0										
81	09	12	17833	S14	W32	63	300	3.0										
81	09	13	17833	S14	W41	59	300	2.5										
81	09	14	17833	S13	W63	65	200	2.5										
81	09	15	17833	S13	W69	60	100	2.0										

HALE REGION 17830 CMP DATE 10.6

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	4	17830	N11	E79	55	2700	3.0	22546	N09	E80	58	(AP)	3				
81	09	5	17830	N09	E67	55	1700	4.0	22546	N09	E65	59	(B)	4				
81	09	6	17830	N09	E48	61	2300	4.0	22546	N10	E52	59	(D)	5				
81	09	7	17830	N08	E37	59	4100	4.0										
81	09	8	17830						22546	N10	E25	60	(D)	5				
81	09	9	17830						22546	N09	E09	63	(D)	6				
81	09	10	17830	N08	W03	59	4500	4.0	22546	N09	W03	61	(D)	5				
81	09	11	17830	N09	W14	58	5500	4.0	22546	N09	W18	63	(D)	6				
81	09	12	17830	N10	W28	59	5700	4.0	22546	N10	W30	62	(D)	5				
81	09	13	17830	N10	W42	60	5900	4.0	22545	N09	W43	62	(D)	5				
81	09	14	17830	N10	W54	56	4400	4.0	22546	N09	W57	63	(D)	5				
81	09	15	17830	N10	W64	55	2500	3.5	22546	N09	W70	62	(AP)	4	H	460	11	ESI
81	09	16	17830	N09	W74	52	1100	3.0	22346	N09	W85	64	B	3	H	140	4	EHI
81	09	17	17830	N12	W79	44	200	2.5										

REGIONS OF SOLAR ACTIVITY

SEPTEMBER 1981

HALE REGION 17832 CMP DATE 10.6

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	5	17832	N01 E66	56	200	3.0	22552	N00 E66	58	(B)	3				
81	09	6	17832	S01 E49	60	200	3.0	22552	N00 E53	58	(B)	4				
81	09	7	17832	S00 E37	59	300	3.0									
81	09	8	17832					22552	N01 E27	58	(B)	3				
81	09	9	17832					22552	N01 E14	58	(B)	3				
81	09	10	17832	N02 W03	59	600	3.0	22552	N01 W03	61	(AF)	3				
81	09	11	17832	N02 W15	59	500	3.0	22552	N01 W16	61	(B)	3				
81	09	12	17832	N02 W30	61	400	3.0									
81	09	13	17832	N02 W44	62	300	2.5									
81	09	14	17832	N02 W59	61	200	2.5									

HALE REGION 17837 CMP DATE 11.3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	4	17837					22547	N14 E81	57	(AP)	2				
81	09	5	17837					22547	N14 E69	55	(AP)	4				
81	09	6	17837	N13 E59	50	1200	4.0	22547	N14 E56	55	(BP)	5				
81	09	7	17837	N14 E46	50	1100	3.5									
81	09	8	17837					22547	N14 E30	55	(BP)	5				
81	09	9	17837					22547	N15 E17	55	(BP)	5				
81	09	10	17837	N16 E06	50	600	4.0	22547	N15 E05	53	(BP)	5				
81	09	11	17837	N16 W06	50	400	3.5	22547	N15 W08	53	(BP)	5				
81	09	12	17837	N17 W22	53	600	4.0	22569	N15 W06	38	X	1				
81	09	12	17837	N17 W22	53	600	4.0	22547	N15 W22	54	(BY)	5				
81	09	13	17837	N17 W33	51	500	4.0	22569	N15 W36	55	(B)	5				
81	09	14	17837	N17 W49	51	300	2.5	22569	N15 W49	55	(BF)	4				
81	09	15	17837	N17 W61	52	300	3.5	22569	N15 W62	54	(AP)	3	H		1	AXX
81	09	16	17837	N17 W70	48	100	3.0									

HALE REGION 17836 CMP DATE 11.4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	5	17836					22554	S07 E80	44	(AP)	3				
81	09	6	17836	S07 E66	43	200	3.0	22554	S07 E67	44	(B)	4				
81	09	7	17836	S07 E51	45	400	4.0									
81	09	8	17836					22554	S07 E40	45	(B)	3				
81	09	9	17836					22554	S08 E24	48	(BY)	4				
81	09	10	17836	S07 E10	46	500	3.5	22554	S08 E11	47	(BY)	3				
81	09	11	17836	S07 W04	48	400	3.5	22554	S08 W02	47	(BY)	3				
81	09	12	17836	S07 W16	47	500	3.0	22554	S08 W14	46	(B)	3				
81	09	13	17836	S07 W30	48	400	3.0	22554	S09 W25	44	(AF)	2				
81	09	14	17836	S07 W45	47	500	3.0									
81	09	15	17836	S07 W57	48	300	3.0									
81	09	16	17836	S07 W68	46	200	3.0	22587	S09 W68	47	(B)	3	P	30	3	BXO
81	09	17	17836	S07 W79	44	100	2.5		S09 W77				L		1	AXX

HALE REGION 17840 CMP DATE 12.0

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	10	17840	S29 E17	39	100	3.0									
81	09	11	17840	S29 E04	40	100	3.0									
81	09	12	17840	S29 W08	39	100	2.0									
81	09	13	17840	S29 W21	39	100	2.5									

REGIONS OF SOLAR ACTIVITY

SEPTEMBER 1981

HALE REGION 17851 CMP DATE 12.8

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	15	17851	S16	W39	30	200	3.0	22582	S17	W38	30	(AP)	3	H	30	3	BXO
81	09	16	17851	S16	W51	29	200	3.0	22582	S17	W51	30	(B)	3	R	20	2	AXX
81	09	17	17851	S16	W63	28	100	2.5	22582	S16	W67	33	(AP)	2				

HALE REGION 17838 CMP DATE 13.5 RETURN OF REGION 17788 ROTATIONS 3 AND 4

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	7	17838	N10	E75	21	400	2.5										
81	09	10	17838	N12	E35	21	800	3.0										
81	09	11	17838	N13	E23	21	700	3.0										
81	09	12	17838	N13	E07	24	800	3.0	22571	N14	E14	18	(AP)	3				
81	09	12	17838	N13	E07	24	800	3.0	22570	N17	E07	25	(AP)	3				
81	09	13	17838	N14	W03	21	700	3.0	22576	N10	W10	29	X	1				
81	09	13	17838	N14	W03	21	700	3.0	22571	N14	W01	20	(AP)	3				
81	09	14	17838	N15	W19	21	800	3.0										
81	09	15	17838	N15	W31	22	700	3.0										
81	09	16	17838	N15	W42	20	700	3.0	22588	N13	W44	23	X	1				
81	09	17	17838	N15	W55	20	1000	3.0										
81	09	18	17838	N15	W69	21	500	2.5										
81	09	19	17838	N15	W78	16	300	2.0										

HALE REGION 17839 CMP DATE 14.3 RETURN OF REGION 17790 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	7	17839	S12	E76	20	200	3.0										
81	09	8	17839						22560	S14	E65	20	X	1				
81	09	8	17839						22559	S10	E53	32	(AP)	2				
81	09	9	17839						22562	S20	E60	12	X	1				
81	09	9	17839						22563	S14	E65	7	(AF)	2				
81	09	10	17839	S14	E41	15	2200	3.0	22562	S18	E50	8	(AF)	2				
81	09	11	17839	S14	E30	14	1800	3.5	22562	S19	E38	7	(B)	3				
81	09	11	17839	S14	E30	14	1800	3.5	22568	S14	E40	5	(AF)	3				
81	09	12	17839	S14	E18	13	2100	3.5	22562	S19	E23	9	(B)	3				
81	09	13	17839	S15	E08	10	3000	3.5	22562	S19	E10	9	(B)	3				
81	09	13	17839	S15	E08	10	3000	3.5	22577	S09	W03	22	(AP)	2				
81	09	13	17839	S15	E08	10	3000	3.5	22578	S17	E23	356	(B)	2				
81	09	14	17839	S15	W08	10	2500	3.5	22577	S09	W16	22	(AP)	3				
81	09	14	17839	S15	W08	10	2500	3.5	22562	S18	W02	8	(B)	3				
81	09	14	17839	S15	W08	10	2500	3.5	22578	S17	E07	359	(AP)	3				
81	09	15	17839	S16	W20	11	2500	3.5	22562	S17	W16	8	(AF)	3	H	10	2	BXO
81	09	15	17839	S16	W20	11	2500	3.5	22578	S17	W04	356	(B)	3	H	10	2	BXO
81	09	16	17839	S16	W28	6	2000	3.0	22589	S20	W25	4	(AP)	2	H	10	3	AXX
81	09	16	17839	S16	W28	6	2000	3.0	22578	S17	W18	357	(B)	3	H	10	3	AXX
81	09	17	17839	S16	W44	9	2300	3.5	22578	S17	W30	356	(B)	4	P	50	6	DAO
81	09	17	17839	S16	W44	9	2300	3.5	22591	S14	W39	5	(AF)	3	P	50	6	DAO
81	09	18	17839	S16	W64	16	1700	3.0	22578	S17	W47		(BP)	3	B	10	4	BXO
81	09	19	17839	S16	W64	2	900	3.0	22597	S17	W56	356	(AP)	2				
81	09	19	17839	S16	W64	2	900	3.0	22578	S15	W61	1	(AP)	2				
81	09	20	17839	S17	W70	5	300	2.5	22597	S18	W70	356	(AF)	3				

HALE REGION 17841 CMP DATE 15.8

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	10	17841	N16	E66	350	200	3.0										
81	09	11	17841	N16	E55	349	200	3.0										
81	09	12	17841	N16	E42	349	500	3.0										
81	09	13	17841	N16	E28	350	200	3.0										
81	09	14	17841	N16	E12	350	100	3.0		N15	E22				H	410	11	DKC

REGIONS OF SOLAR ACTIVITY

SEPTEMBER 1981

HALE REGION 17843 CMP DATE 16.0 RETURN OF LEADING EDGE OF REGION 17794 ROTATION 5

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	10	17843	S08 E58	348	300	2.5									
81	09	11	17843	S08 E58	346	400	3.0									
81	09	12	17843	S08 E45	346	500	3.0									
81	09	13	17843	S08 E30	348	500	3.0									
81	09	14	17843	S08 E14	348	500	3.0									
81	09	15	17843	S10 E03	348	400	3.0	22583	S22 E07	345	(AP)	3				
81	09	16	17843	S12 W09	347	400	3.0		S17 W13				P	10	4	BXO
81	09	17	17843	S13 W23	348	700	3.0		S18 W27				L	20	7	CAO
81	09	18	17843	S13 W35	347	500	3.0		S15 W45				B	10	4	BXO
81	09	19	17843	S13 W50	348	500	3.0									
81	09	20	17843	S11 W62	357	400	2.5									

HALE REGION 17842 CMP DATE 16.4

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	10	17842	N18 E78	338	400	4.0	22566	N19 E80	338	(AP)	2				
81	09	11	17842	N16 E66	338	700	4.0	22566	N18 E69	336	(B)	4				
81	09	12	17842	N18 E53	338	1400	4.0	22566	N18 E54	338	(B)	5				
81	09	12	17842	N18 E53	338	1400	4.0	22572	N16 E45	347	(AF)	2				
81	09	13	17842	N18 E38	340	2100	4.0	22566	N19 E40	339	(B)	5				
81	09	13	17842	N18 E38	340	2100	4.0	22572	N16 E35	344	(B)	4				
81	09	14	17842	N18 E24	338	2900	4.0	22566	N19 E28	338	(B)	5	H	410	11	DKC
81	09	14	17842	N18 E24	338	2900	4.0	22572	N15 E23	343	(B)	5	H	410	11	DKC
81	09	15	17842	N17 E08	343	3500	4.0	22572	N15 E10	342	(B)	5	H	540	7	DHI
81	09	15	17842	N17 E08	343	3500	4.0	22566	N10 E14	338	(B)	5	H	540	7	DHI
81	09	16	17842	N17 W04	342	3800	3.5	22566	N19 E01	338	(B)	5	H	290	14	DHI
81	09	16	17842	N17 W04	342	3800	3.5	22572	N15 W03	342	(BY)	5	H	480	14	EKI
81	09	17	17842	N17 W10	335	3300	4.0	22572	N15 W16	342	(B)	4	P	530	17	EHI
81	09	17	17842	N17 W10	335	3300	4.0	22566	N19 W12	338	(B)	5	P	280	12	DKO
81	09	18	17842	N17 W26	338	3300	3.5	22566	N19 W25	338	(BP)	6	B	230	6	CAO
81	09	18	17842	N17 W26	338	3300	3.5	22572	N15 W29	342	(B)	5	B	290	6	EKO
81	09	19	17842	N17 W41	339	3000	3.5	22566	N19 W38	338	(BP)	5	H	250	4	CSO
81	09	19	17842	N17 W41	339	3000	3.5	22572	N15 W42	342	(B)	4	H	480	17	EKO
81	09	20	17842	N17 W53	348	2500	3.5	22572	N15 W55	341	(B)	4	H	420	8	EKO
81	09	20	17842	N17 W53	348	2500	3.5	22566	N19 W53	339	(BP)	5	H	390	2	HAX
81	09	21	17842	N20 W64	336	1100	3.5	22566	N20 W67	340	(BP)	4	H	130	1	HAX
81	09	21	17842	N20 W64	336	1100	3.5	22572	N16 W58	341	(B)	4	H	340	9	EAO
81	09	22	17842	N18 W75	335	700	3.5	22566	N19 W80	341	(AP)	3	B	150	1	HSX
81	09	22	17842	N18 W75	335	700	3.5	22572	N15 W80	341	(B)	3	B	100	3	BXO

HALE REGION 17849 CMP DATE 17.4 RETURN OF REGION 17795 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	14	17849	S03 E35	327	100	3.0									
81	09	15	17849	S03 E23	328	100	2.5		S05 E26				H	10	1	HAX
81	09	16	17849	S03 E09	329	100	2.5		S05 E15				H	20	3	BXO

HALE REGION 17857 CMP DATE 17.7

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	18	17857	N19 W13	325	200	3.0	22595	N20 W11	324	(B)	4	B	30	7	CRO
81	09	19	17857	N19 W27	325	300	3.0	22596	N20 W27	327	(B)	5	B	40	5	CSO
81	09	20	17857	N19 W41	336	500	3.0	22595	N19 W40	326	(B)	3	H	80	8	CSO
81	09	21	17857	N19 W53	325	500	3.0	22596	N20 W54	327	(B)	4	H	130	6	CAO
81	09	22	17857	N19 W65	325	400	3.5	22596	N20 W68	329	(B)	3	B	120	8	CSO
81	09	23	17857	N18 W75	321	300	3.5	22596	N20 W80	327	BP	3	B	120	1	HSX

REGIONS OF SOLAR ACTIVITY

SEPTEMBER 1981

HALE REGION 17852 CMP DATE 17.9

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	15	17852	S06 E26	325	100	3.0	22584	S05 E28	324	(AP)	3	H	10	1	HAX
81	09	16	17852	S05 E16	322	200	3.0	22584	S05 E15	324	(B)	3	H	20	3	BXO
81	09	17	17852	S05 E02	323	200	3.0	22584	S05 E03	323	(AP)	2	P	10	4	BXO
81	09	18	17852	S05 W12	324	200	3.0		S06 W10				B		1	AXX
81	09	19	17852	S05 W26	324	100	2.5									

HALE REGION 17847 CMP DATE 18.0 RETURN OF REAR OF REGION 17796 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	12	17847	S20 E68	323	500	3.0	22573	S18 E70	322	(AP)	3				
81	09	13	17847	S21 E55	323	800	3.5	22573	S17 E58	321	(AP)	3				
81	09	14	17847	S21 E38	324	600	3.5	22573	S17 E44	322	(B)	2				
81	09	15	17847	S20 E27	324	700	3.0	22573	S17 E30	322	(AP)	4	H		1	AXX
81	09	16	17847	S18 E16	322	800	3.0	22573	S17 E17	322	(AP)	3	H	10	2	AXX
81	09	17	17847	S18 E04	321	500	3.0									
81	09	18	17847	S18 W08	320	300	3.0	22595	S18 W08	321	(AP)	3	B		1	AXX
81	09	19	17847	S17 W24	322	300	2.5	22595	S18 W22	322	X	1				
81	09	19	17847	S17 W24	322	300	2.5	22598	S18 W28	328	(AP)	2				
81	09	20	17847	S17 W37	332	300	3.0		S14 W30				H	10	3	AXX
81	09	21	17847	S17 W50	322	200	2.5	22612	S18 W54	327	(AP)	3	H	10	2	AXX

HALE REGION 17845 CMP DATE 18.5 RETURN OF LEADING EDGE OF REGION 17801 ROTATION 4

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	12	17845	S06 E79	312	300	3.0	22574	S05 E80	312	(AP)	2				
81	09	13	17845	S06 E66	312	700	3.5	22574	S04 E66	313	(B)	3				
81	09	14	17845	S06 E49	313	700	3.0	22574	S05 E52	314	(B)	3				
81	09	15	17845	S06 E37	314	800	3.5	22574	S05 E38	314	(AP)	3	H		1	AXX
81	09	16	17845	S06 E26	312	800	4.0	22574	S05 E26	313	(AF)	3	H	10	3	BXO
81	09	17	17845	S06 E13	312	600	3.0	22574	S05 E14	312	(B)	3	P	10	4	BXO
81	09	17	17845	S06 E13	312	600	3.0	22593	S07 E25	301	(AP)	3	L	20	4	HRO
81	09	18	17845	S05 W03	315	800	3.5	22593	S08 E10	303	(AP)	3	B	90	9	DAC
81	09	18	17845	S05 W03	315	800	3.5	22574	S04 E01	312	(B)	4	B	90	9	DAC
81	09	19	17845	S05 W15	313	1000	3.0	22593	S07 W04	304	(AP)	3	H	10	2	AXX
81	09	19	17845	S05 W15	313	1000	3.0	22574	S04 W13	313	(BY)	3	H	70	13	CRO
81	09	20	17845	S05 W28	323	1300	3.0	22574	S04 W28	314	(AP)	2	L	10	5	BXO
81	09	21	17845	S05 W38	310	800	3.0									
81	09	22	17845	S05 W55	315	400	3.0	22617	S07 W50	311	(AP)	3	M		7	BXO
81	09	23	17845	S05 W65	311	300	3.0									

HALE REGION 17846 CMP DATE 18.7

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	12	17846	S16 E76	315	200	3.0									
81	09	13	17846	S16 E66	312	500	3.5	22579	S16 E68	311	(AF)	2				
81	09	14	17846	S16 E50	312	900	3.5	22579	S16 E56	310	(B)	3				
81	09	15	17846	S16 E38	313	900	3.5	22579	S16 E42	310	(B)	3	H	10	1	AXX
81	09	16	17846	S16 E26	312	1000	3.0	22579	S16 E30	309	(B)	3	H	40	5	CSO
81	09	17	17846	S16 E14	311	900	3.5	22579	S16 E16	310	(BY)	3	L		2	BXO
81	09	18	17846	S16 E00	312	700	3.5	22579	S16 E05	308	(B)	3	B	30	2	CAO
81	09	19	17846	S16 W15	313	700	3.0	22579	S16 W03	303	(AF)	2	H	10	2	AXX
81	09	19	17846	S16 W15	313	700	3.0	22599	S16 W10	310	(AF)	3	H	10	3	BXO
81	09	20	17846	S16 W26	321	600	3.5	22606	S15 W25	311	(B)	3	H	10	3	AXX
81	09	20	17846	S16 W26	321	600	3.5	22605	S14 W30	316	(AP)	3	H	10	3	AXX
81	09	21	17846	S15 W40	312	500	3.0	22613	S15 W33	306	(AP)	3	H		1	AXX
81	09	22	17846	S14 W53	313	300	3.0		S12 W45				M		7	BXO
81	09	23	17846	S15 W69	315	300	3.0	22623	S17 W75	322	(AF)	2				

REGIONS OF SOLAR ACTIVITY

SEPTEMBER 1981

HALE REGION 17844 CMP DATE 18.9 RETURN OF REGION 17798 ROTATION 2

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	12	17844	N12	E75	316	300	2.5										
81	09	13	17844	N12	E62	316	600	3.0										
81	09	14	17844	N12	E47	315	900	3.0										
81	09	15	17844	N12	E38	313	500	3.5										
81	09	16	17844	N12	E25	313	800	3.0	22590	N08	E28	311	(AF)	2	H	10	2	AXX
81	09	17	17844	N13	E16	309	500	3.0	22592	N14	E19	307	(AF)	2	P	20	2	CAO
81	09	18	17844	N13	E03	309	700	3.0	22592	N13	E05	308	(B)	3	B	30	12	CRO
81	09	19	17844	N13	W11	309	700	3.0	22592	N13	W09	309	(B)	3	H	30	8	BXO
81	09	20	17844	N13	W24	319	900	3.0	22592	N13	W20	306	(AF)	3	L		1	AXX
81	09	21	17844	N14	W37	309	700	3.0	22592	N14	W33	306	(AF)	3	H	10	2	AXX
81	09	22	17844	N14	W48	308	700	3.0	22592	N13	W47	308	(B)	2	P	30	5	BXO
81	09	23	17844	N14	W62	308	600	3.5	22592	N13	W62	309	(B)	3	B	40	3	BXO
81	09	24	17844	N14	W72	305	700	3.5	22592	N13	W78	312	X	2				

HALE REGION 17848 CMP DATE 19.5

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	14	17848	N14	E72	290	600	3.0	22580	N10	E75	291	(AP)	3				
81	09	15	17848	N14	E61	290	1100	3.0	22580	N10	E60	292	(AP)	4	H	60	1	HSX
81	09	16	17848	N14	E47	291	900	3.0	22580	N10	E48	291	(AP)	4	H	60	1	HSX
81	09	17	17848	N13	E35	290	1100	3.0	22580	N10	E35	291	(BP)	2	P	120	1	HSX
81	09	18	17848	N13	E23	289	600	3.0	22580	N10	E21	292	(AP)	5	B	140	1	HAX
81	09	19	17848	N13	E07	291	600	3.0	22580	N09	E08	292	(BP)	5	H	110	3	CSO
81	09	19	17848	N13	E07	291	600	3.0	22600	N14	E12	288	(AP)	4	H		1	AXX
81	09	20	17848	N13	W06	301	700	3.0	22580	N10	W06	292	(AP)	5	H	90	1	HSX
81	09	20	17848	N13	W06	301	700	3.0	22600	N15	W04	290	(AP)	3	H	90	1	HSX
81	09	21	17848	N15	W18	290	500	3.0	22580	N10	W19	292	(AP)	4	H	100	1	HSX
81	09	21	17848	N15	W18	290	500	3.0	22600	N15	W18	291	(AF)	3	H	100	1	HSX
81	09	22	17848	N15	W33	293	700	2.5	22580	N10	W32	293	(AP)	5	B	80	3	CSO
81	09	23	17848	N14	W44	290	700	3.0	22580	N10	W46	293	(AP)	4	B	60	1	HSX
81	09	24	17848	N14	W57	290	700	3.0	22580	N10	W62	296	(B)	4				
81	09	25	17848	N14	W71	291	700	2.5										

HALE REGION 17850 CMP DATE 20.2 RETURN OF REGION 17801 ROTATION 4

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	14	17850	S08	E64	298	1300	3.5	22581	S07	E80	286	AP	2				
81	09	15	17850	S12	E54	297	3100	4.0	22581	S07	E66	286	(B)	4	H	80	8	CSO
81	09	15	17850	S12	E54	297	3100	4.0	22585	S12	E60	292	(AP)	3	H	80	8	CSO
81	09	16	17850	S12	E45	293	3000	3.5	22581	S08	E51	288	(B)	4	H	100	9	CSO
81	09	17	17850	S12	E35	290	3000	3.5	22581	S08	E39	287	(B)	4	P	50	7	DAO
81	09	18	17850	S12	E22	290	4000	3.5	22581	S09	E26	287	(B)	3	B	30	7	CRO
81	09	19	17850	S12	E06	292	3600	3.5	22581	S08	E12	288	(B)	3	H	40	5	CRO
81	09	20	17850	S13	W08	303	3600	3.5	22607	S20	W15	301	(B)	2	H	10	3	BXO
81	09	20	17850	S13	W08	303	3600	3.5	22581	S10	W00	286	(BF)	3	P	50	13	BXO
81	09	21	17850	S13	W18	290	3500	3.0	22607	S19	W29	302	(B)	3	H		1	AXX
81	09	21	17850	S13	W18	290	3500	3.0	22581	S09	W13	286	(AF)	3	H	30	9	BXO
81	09	22	17850	S13	W34	294	3100	3.0	22581	S09	W27	288	(AF)	3	B	20	15	BXI
81	09	23	17850	S13	W47	293	3900	3.0	22624	S19	W55	302	(AP)	3				
81	09	23	17850	S13	W47	293	3900	3.0	22581	S10	W38	285	(AF)	3	L	20	9	BXO
81	09	24	17850	S13	W55	288	2500	3.0	22624	S19	W62	296	AP	2				
81	09	25	17850	S17	W68	288	1200	3.0										
81	09	26	17850	S15	W75	281	200	2.0										

REGIONS OF SOLAR ACTIVITY

SEPTEMBER 1981

HALE REGION 17854 CMP DATE 21.3 RETURN OF REGION 17806 ROTATION 3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	17	17854	N15	E51	274	400	3.0										
81	09	18	17854	N15	E35	277	600	3.0		N10	E30				M	100	1	HSX
81	09	19	17854	N15	E22	276	500	3.0	22601	N14	E23	277	(AF)	3	H		1	AXX
81	09	20	17854	N15	E06	289	400	3.0		N10	E01				L	90	1	HSX
81	09	21	17854	N15	W05	277	400	3.0		N10	W12				M	120	1	HSX
81	09	22	17854	N15	W16	276	300	3.0		N10	W09				M	370	28	FKI
81	09	23	17854	N15	W28	274	300	3.0		N12	W18				B	140	24	FKO
81	09	24	17854	N15	W43	276	300	3.0										
81	09	25	17854	N16	W56	276	400	3.0										
81	09	26	17854	N17	W68	274	300	2.5										
81	09	27	17854	N17	W80	272	100	2.5										

HALE REGION 17859 CMP DATE 21.4

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	19	17859	S22	E25	273	400	3.0	22602	S23	E27	273	X	1				
81	09	20	17859	S22	E12	283	300	3.0	22608	S13	E06	280	(AF)	3	H	40	17	BXI
81	09	21	17859	S21	W04	276	300	3.0	22615	S21	E01	272	(AF)	2	H	10	1	AXX
81	09	21	17859	S21	W04	276	300	3.0	22608	S14	W07	280	(AF)	3	H	30	9	BXO
81	09	22	17859	S21	W15	275	300	3.0	22615	S21	W10	271	(AF)	3	P	20	5	BXO
81	09	22	17859	S21	W15	275	300	3.0	22608	S13	W21	282	(AF)	2	B	20	15	BXI
81	09	23	17859	S21	W28	274	3000	3.0	22608	S13	W33	280	(AF)	2	L	20	9	BXO
81	09	23	17859	S21	W28	274	3000	3.0	22615	S22	W25	272	(BF)	4	B	20	2	BXO
81	09	24	17859	S22	W49	282	100	3.0	22615	S22	W38	272	AF	3				
81	09	25	17859	S22	W53	273	100	2.5										

HALE REGION 17853 CMP DATE 22.3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	15	17853	N12	E76	275	300	3.5	22586	N10	E80	272	AP	2	H	50	1	HSX
81	09	16	17853	N11	E73	265	1800	3.5	22586	N10	E78	261	(B)	4	H	240	4	DAO
81	09	17	17853	N10	E58	267	2200	3.5	22586	N10	E65	261	(B)	4	P	310	12	FAI
81	09	18	17853	N10	E46	266	2300	3.5	22586	N10	E51	262	(B)	4	B	660	12	FKO
81	09	19	17853	N10	E33	255	3300	4.0	22603	N15	E30	270	(AF)	2				
81	09	19	17853	N10	E33	265	3300	4.0	22586	N10	E37	263	(BY)	4	B	370	18	FKI
81	09	20	17853	N10	E21	274	3000	4.0	22586	N10	E23	263	(BY)	5	H	360	31	FKI
81	09	21	17853	N10	E07	265	2300	3.5	22586	N11	E14	259	(BY)	4	H	240	38	FAI
81	09	21	17853	N10	E07	265	2300	3.5	22614	N09	E02	271	(AP)	4	H	240	38	FAI
81	09	22	17853	N11	W05	265	2000	3.0	22586	N11	E03	258	(AF)	4	M	390	36	FKI
81	09	22	17853	N11	W05	265	2000	3.0	22614	N10	W11	272	(B)	3	B	140	22	FKO
81	09	23	17853	N11	W18	264	2000	3.5	22614	N10	W26	273	(AP)	3	B	140	24	FKO
81	09	23	17853	N11	W18	264	2000	3.5	22586	N11	W10	257	(BF)	4	B	140	24	FKO
81	09	24	17853	N11	W32	265	2000	3.5	22586	N11	W24	258	(BF)	4				
81	09	25	17853	N11	W45	265	1400	3.5	22586	N11	W38	258	(B)	4				
81	09	26	17853	N12	W54	260	1800	3.0	22586	N11	W53	260	(BF)	3				
81	09	27	17853	N13	W64	256	1700	3.5	22586	N12	W65	259	(B)	4				
81	09	28	17853	N13	W75	254	800	3.5	22586	N11	W79	260	AP	2				

HALE REGION 17855 CMP DATE 23.3 RETURN OF FRONT PART OF REGION 17807 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	17	17855	N18	E74	251	700	3.0										
81	09	18	17855	N18	E59	253	1100	3.0										
81	09	19	17855	N18	E46	252	1300	3.0										
81	09	20	17855	N15	E33	262	1400	3.5	22609	N20	E41	245	(AP)	3				
81	09	21	17855	N20	E22	250	1000	3.0	22609	N21	E23	250	(AP)	3	B	10	2	BXO
81	09	22	17855	N21	E08	252	1000	3.0	22609	N21	E09	252	(AP)	3	B		6	BXO
81	09	22	17855	N21	E08	252	1000	3.0	22618	N17	E17	244	(AP)	3	B		6	BXO
81	09	23	17855	N21	W06	252	700	3.0	22618	N17	W06	253	(AP)	3	B	20	5	BXO
81	09	23	17855	N21	W06	252	700	3.0	22609	N21	W05	252	(AP)	3	B	20	5	BXO

CONT

REGIONS OF SOLAR ACTIVITY

SEPTEMBER 1981

HALE REGION 17855 (CONT) CMP DATE 23.3 RETURN OF FRONT PART OF REGION 17807 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	24	17855	N21	W18	251	800	3.0										
81	09	25	17855	N21	W34	254	800	3.0										
81	09	26	17855	N21	W46	252	900	3.0										
81	09	27	17855	N23	W59	251	800	3.5										
81	09	28	17855	N22	W71	250	400	3.0										

HALE REGION 17856 CMP DATE 23.3 RETURN OF REGION 17808 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	17	17856	S07	E75	250	500	4.0	22594	S08	E75	251	(AP)	3	P	280	6	DAO
81	09	18	17856	S07	E61	251	1200	4.0	22594	S08	E61	252	(BY)	4	B	460	12	DKI
81	09	19	17856	S08	E47	251	2000	4.0	22594	S08	E48	252	(BY)	5	H	360	12	DHO
81	09	19	17856	S08	E47	251	2000	4.0	22604	S05	E57	243	(AF)	2	H	360	12	DHO
81	09	20	17856	S08	E35	260	2100	4.0	22594	S07	E35	251	(BY)	4	B	230	6	DSI
81	09	21	17856	S08	E21	251	1800	4.0	22594	S08	E21	252	(BY)	5	H	260	7	DHO
81	09	22	17856	S08	E07	253	1800	3.5	22594	S07	E09	252	(BY)	5	B	220	9	DSO
81	09	23	17856	S07	W05	251	1800	3.0	22594	S07	W04	251	(BY)	5	B	160	7	CSO
81	09	24	17856	S07	W18	251	1400	3.5	22594	S08	W20	254	(AP)	5				
81	09	25	17856	S07	W32	252	1300	3.5	22594	S09	W34	254	(AP)	5				
81	09	25	17856	S07	W32	252	1300	3.5	22630	S03	W25	245	(B)	2				
81	09	26	17856	S07	W45	251	1000	3.0	22594	S09	W47	254	(BP)	4				
81	09	27	17856	S07	W56	248	500	3.0	22594	S08	W60	254	(AP)	4				
81	09	28	17856	S07	W68	247	400	3.0	22594	S10	W72	253	(AP)	4				

HALE REGION 17862 CMP DATE 24.8

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	20	17862	S09	E53	242	200	3.0										
81	09	21	17862	S09	E41	231	300	2.0		S07	E31				L	290	17	DHI
81	09	22	17862	S11	E28	232	300	2.5										
81	09	23	17862	S08	E14	232	200	3.0	22625	S08	E17	230	(AP)	3	B	30	2	HRX
81	09	24	17862	S08	E02	231	300	3.0	22625	S08	E03	231	(B)	3				
81	09	25	17862	S08	W13	233	300	3.5	22625	S08	W11	231	(B)	4				
81	09	26	17862	S07	W26	232	800	3.0	22625	S08	W24	231	(B)	3				
81	09	27	17862	S07	W38	230	700	4.0	22625	S08	W38	232	(B)	4				
81	09	28	17862	S07	W53	232	1200	3.5	22625	S09	W50	231	(B)	4				
81	09	29	17862						22625	S08	W63	227	AP	3	H	130	3	CAO
81	09	30	17862	S07	W75	229	300	3.5	22625	S08	W77	231	AF	2	H	60	1	HSX

HALE REGION 17860 CMP DATE 25.3

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	19	17860	N27	E69	229	500	2.5										
81	09	20	17860	N27	E58	237	800	3.0										
81	09	21	17860	N27	E45	227	700	3.0										
81	09	22	17860	N27	E34	226	400	3.0										
81	09	23	17860	N27	E22	224	400	2.5										
81	09	24	17860	N27	E07	226	500	3.0										
81	09	25	17860	N27	W05	225	300	3.0										
81	09	26	17860	N28	W18	224	400	3.0										
81	09	27	17860	N30	W32	224	300	3.0										
81	09	28	17860	N30	W44	223	400	3.0										
81	09	30	17860	N30	W67	221	300	3.0										

REGIONS OF SOLAR ACTIVITY

SEPTEMBER 1981

HALE REGION 17858 CMP DATE 25.4 RETURN OF REGIONS 17809 AND 17811 ROTATIONS 3 AND 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	18	17858	N15 E76	236	300	2.5									
81	09	19	17858	N15 E68	230	1500	3.0									
81	09	20	17858	N15 E55	240	1300	3.0									
81	09	21	17858	N17 E47	225	1800	3.0	22616	N20 E46	227	(B)	3	H	10	2	AXX
81	09	22	17858	N17 E32	228	1500	3.0	22616	N20 E32	229	(B)	3	B		4	BXO
81	09	23	17858	N17 E22	224	1900	3.0		N17 E32				B		1	AXX
81	09	24	17858	N17 E10	223	2300	3.0									
81	09	25	17858	N17 W04	224	1600	3.0									
81	09	26	17858	N17 W18	224	1400	3.0									
81	09	27	17858	N17 W32	224	1200	3.0									
81	09	28	17858	N17 W43	222	1700	3.0									
81	09	30	17858	N20 W66	220	1100	3.0									

HALE REGION 17867 CMP DATE 26.1 RETURN OF REGION 17812 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	25	17867	N16 E06	214	300	3.0	22632	N16 E08	212	(BP)	4				
81	09	26	17867	N16 W06	212	400	3.0	22632	N17 W05	212	(BP)	4				
81	09	27	17867	N16 W22	214	400	3.0	22632	N16 W21	215	(AP)	3				
81	09	28	17867	N16 W34	213	300	3.0									
81	09	30	17867	N16 W57	211	200	3.0									

HALE REGION 17863 CMP DATE 26.9

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	20	17863	S07 E75	220	200	3.0	22610	S07 E78	208	AP	2	H	10	2	AXX
81	09	21	17863	S07 E65	207	700	3.0	22610	S10 E70	203	(B)	2	H	20	2	AXX
81	09	22	17863	S07 E54	206	1100	3.5	22620	S09 E62	199	(AP)	3	B	20	2	CAO
81	09	22	17863	S07 E54	206	1100	3.5	22610	S07 E51	210	(AP)	2	B		1	AXX
81	09	23	17863	S07 E42	204	1200	3.5	22610	S07 E39	208	(AP)	3	B	30	2	CSO
81	09	23	17863	S07 E42	204	1200	3.5	22620	S09 E49	198	(AP)	2	B	30	2	CSO
81	09	24	17863	S07 E28	205	1000	3.5	22620	S09 E36	198	(B)	4				
81	09	25	17863	S07 E16	204	800	3.5	22631	S09 E11	209	(AP)	3				
81	09	25	17863	S07 E16	204	800	3.5	22620	S09 E22	198	(AP)	4				
81	09	26	17863	S07 E02	204	700	3.5	22620	S09 E08	199	(AP)	4				
81	09	27	17863	S07 W13	205	600	3.5	22620	S09 W05	199	(AP)	4				
81	09	28	17863	S07 W24	203	700	3.5	22620	S09 W17	198	(AP)	4				
81	09	29	17863					22620	S09 W34	198	AP	4	H	90	23	EAO
81	09	30	17863	S07 W46	200	800	3.5	22620	S09 W45	199	AP	4	H	60	1	HSX

HALE REGION 17861 CMP DATE 27.0 RETURN OF REGION 17813 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	20	17861	N15 E78	217	400	3.0	22611	N17 E80	206	AF	2	P		1	AXX
81	09	21	17861	N16 E67	205	500	3.0	22611	N16 E69	204	(AF)	3	H	10	1	HRX
81	09	22	17861	N16 E55	205	600	3.5	22611	N16 E55	206	(AF)	3	M		1	AXX
81	09	23	17861	N17 E44	202	900	3.0	22611	N15 E37	210	(B)	3	B		1	AXX
81	09	24	17861	N17 E31	202	1000	3.5	22627	N16 E32	202	(B)	3				
81	09	25	17861	N17 E17	203	800	3.0	22627	N17 E19	201	(B)	3				
81	09	26	17861	N17 E03	203	600	3.0	22627	N17 E04	203	B	2				
81	09	27	17861	N17 W13	205	500	3.0									
81	09	28	17861	N18 W24	203	700	3.0									
81	09	30	17861	N18 W46	200	600	3.0									

REGIONS OF SOLAR ACTIVITY

SEPTEMBER 1981

HALE REGION 17865 CMP DATE 28.1

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	22	17865					22622	S08 E75	186	(AP)	2	B	20	2	CAO
81	09	23	17865	S07 E62	184	400	3.5	22622	S07 E61	186	(AP)	2	M	40	4	CSO
81	09	24	17865	S07 E45	188	500	3.5	22622	S07 E47	187	(AP)	4				
81	09	25	17865	S07 E32	188	700	3.5	22622	S06 E33	187	(B)	4				
81	09	25	17865	S07 E32	188	700	3.5	22633	S10 E28	192	(AP)	4				
81	09	26	17865	S07 E16	190	700	3.5	22622	S07 E17	190	(B)	4				
81	09	27	17865	S07 E04	188	1100	3.5	22622	S07 E05	189	(B)	3				
81	09	28	17865	S07 W09	188	600	3.5	22622	S07 W09	190	(BP)	3				
81	09	29	17865					22622	S06 W27	191	B	3	H	90	23	EAO
81	09	30	17865	S07 W36	190	1200	3.5	22622	S07 W37	191	B	3	H	80	15	BXI

HALE REGION 17870 CMP DATE 28.1

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	26	17870	N07 E17	189	400	3.5	22635	N08 E18	189	(B)	4				
81	09	27	17870	N07 E04	188	600	3.5	22635	N07 E05	189	(B)	4				
81	09	28	17870	N08 W10	189	1600	3.5	22635	N09 W08	189	(B)	4				
81	09	29	17870					22635	N09 W25	189	B	5	H	300	22	EKO
81	09	30	17870	N08 W36	190	1700	3.5	22635	N09 W36	190	B	5	H	330	17	EHO

HALE REGION 17864 CMP DATE 29.0 RETURN OF REGION 17814 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	22	17864	S12 E71	189	200	2.5	22621	S14 E77	184	(AP)	3	B	80	1	HSX
81	09	23	17864	S13 E67	179	700	3.0	22621	S14 E61	186	(AP)	3	B	90	1	HSX
81	09	23	17864	S13 E67	179	700	3.0	22626	S14 E77	170	(AP)	3	P	10	3	AXX
81	09	24	17864	S15 E53	180	1200	3.5	22626	S13 E66	168	(B)	4				
81	09	24	17864	S15 E53	180	1200	3.5	22621	S14 E48	186	(AP)	4				
81	09	25	17864	S15 E42	178	1700	3.5	22621	S14 E35	185	(AP)	4				
81	09	25	17864	S15 E42	178	1700	3.5	22626	S14 E51	169	(B)	4				
81	09	26	17864	S15 E30	176	1500	3.5	22621	S14 E22	185	(AP)	4				
81	09	26	17864	S15 E30	176	1500	3.5	22626	S14 E37	170	(B)	4				
81	09	27	17864	S15 E16	176	1800	3.5	22621	S14 E07	187	(AP)	4				
81	09	27	17864	S15 E16	176	1800	3.5	22626	S14 E24	170	(B)	3				
81	09	28	17864	S14 E03	176	1500	3.5	22626	S14 E10	171	(B)	4	H	60	11	DAO
81	09	28	17864	S14 E03	176	1500	3.5	22621	S14 W04	185	(AP)	4				
81	09	29	17864					22626	S14 W07	171	B	3	H	30	12	BXO
81	09	29	17864					22621	S14 W21	185	AP	4	H	40	1	HSX
81	09	30	17864	S14 W20	174	1300	3.5	22621	S14 W32	186	AP	4	H	50	1	HSX
81	09	30	17864	S14 W20	174	1300	3.5	22626	S14 W16	170	B	2	H	20	6	BXO

HALE REGION 17879 CMP DATE 30.2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	10	5	17879	S18 W75	160	100	2.0									

HALE REGION 17866 CMP DATE 30.3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	24	17866	N07 E78	155	200	3.0	22629	N04 E85	149	AP	2				
81	09	24	17866	N07 E78	155	200	3.0	22628	N08 E85	149	AP	2				
81	09	25	17866	N07 E68	152	500	3.5	22629	N04 E71	149	(AP)	3				
81	09	25	17866	N07 E68	152	500	3.5	22628	N08 E67	153	(B)	4				
81	09	26	17866	N07 E53	153	800	3.5	22629	N04 E57	150	(AP)	4				

CONT

REGIONS OF SOLAR ACTIVITY

SEPTEMBER 1981

HALE REGION 17866 (CONT) CMP DATE 30.3

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	26	17866	N07	E53	153	800	3.5	22628	N08	E52	155	(BP)	4				
81	09	27	17866	N07	E38	154	2000	3.5	22629	N04	E42	152	(AP)	4				
81	09	27	17866	N07	E38	154	2000	3.5	22628	N08	E37	157	(BP)	3				
81	09	28	17866	N07	E26	153	2000	3.5	22628	N08	E25	156	(B)	4				
81	09	28	17866	N07	E26	153	2000	3.5	22629	N05	E28	153	(B)	4				
81	09	29	17866						22628	N07	E07	157	B	4	H	140	9	DAO
81	09	29	17866						22629	N04	E11	153	AP	3	H	140	9	DAO
81	09	30	17866	N07	W05	159	900	3.5	22628	N07	W06	160	BP	4	H	110	10	CAO
81	09	30	17866	N07	W05	159	900	3.5	22629	N05	W01	155	AP	4	H	110	10	CAO
81	10	3	17866							N07	W45				H	60	4	DAO
81	10	4	17866						22629	N05	W54	156	(AP)	3	H	40	2	HAX
81	10	4	17866						22628	N09	W58	160	(AP)	4	H	40	2	HAX
81	10	5	17866	N08	W74	159	800	1.5	22628	N08	W73	161	(AP)	3	B		1	AXX

HALE REGION 17874 CMP DATE 30.3

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	30	17874	N17	W05	159	100	3.0										

HALE REGION 17871 CMP DATE 30.4 NEW, IN LOCATION OF REGION 17821

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	09	26	17871	S07	E50	156	100	3.0	22636	S06	E52	155	(AP)	2				
81	09	27	17871	S07	E36	156	300	3.0	22636	S07	E37	157	(B)	4				
81	09	28	17871	S07	E23	156	300	3.0	22636	S07	E26	155	(AP)	3				
81	09	29	17871						22636	S07	E08	156	B	4	P	40	10	BXO
81	09	30	17871	S07	W04	158	300	3.5	22636	S07	W03	157	B	5	H	200	12	DAI
81	10	3	17871							S08	W42				H	50	1	HAX
81	10	4	17871						22636	S05	W55	157	(AP)	3	H	20	2	AXX
81	10	5	17871	S07	W73	158	300	1.5	22636	S05	W69	157	(AP)	3	B		1	AXX

NOTE: No spectroheliograms from any source were available for September 8, 9, and 29, 1981.
No Mt. Wilson sunspot data were available for September 7, 1981.

CONTIGUOUS PLAGES FOR SEPTEMBER 1981: None.

DAILY CALCIUM PLAGE INDEX

SEPTEMBER 1981

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
81	9	1	49.9	81	9	11	41.2	81	9	21	43.9
81	9	2	48.3	81	9	12	43.5	81	9	22	37.5
81	9	3	46.9	81	9	13	46.4	81	9	23	45.4
81	9	4	40.6	81	9	14	43.5	81	9	24	37.4
81	9	5	40.1	81	9	15	45.5	81	9	25	30.7
81	9	6	47.3	81	9	16	42.9	81	9	26	32.2
81	9	7	50.5	81	9	17	46.1	81	9	27	40.0
81	9	8	*	81	9	18	47.6	81	9	28	44.3
81	9	9	*	81	9	19	54.8	81	9	29	*
81	9	10	40.0	81	9	20	56.6	81	9	30	47.3

* NO OBSERVATIONS

PIONEER XII (VENUS ORBITER)

Interplanetary Magnetic Field Magnitudes

MAGNETIC FIELD MAGNITUDES

SEPTEMBER 1981

DATE	TIME	BMAG
09/01/81	17:37:37	18.75
09/02/81		----
09/03/81	17:39:08	6.39
09/04/81	17:43:40	8.49
09/05/81		----
09/06/81	13:01:38	14.75
09/07/81		----
09/08/81	13:02:25	8.98
09/09/81	13:00:48	10.71
09/10/81	13:01:43	12.26
09/11/81	13:01:37	11.43
09/12/81	13:01:24	18.66
09/13/81		----
09/14/81	13:00:24	12.91
09/15/81	16:36:32	15.29
09/16/81	16:37:48	9.47
09/17/81	18:08:45	11.42
09/18/81	16:37:46	17.50
09/19/81	09:59:19	11.33
09/20/81	05:08:02	10.43
09/21/81	12:57:13	12.35
09/22/81		----
09/23/81	12:56:52	11.68
09/24/81	12:55:16	15.22
09/25/81		----
09/26/81	12:56:50	10.79
09/27/81	12:51:21	9.57
09/28/81	12:53:42	11.78
09/29/81	13:23:45	12.54
09/30/81	12:53:14	12.41

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01	0000	0732	CULG				0024	0025.5					IIIG,U,W
			CULG				0030.5	0035				II	W
			CULG				0040	0041					I,W
			CULG	0053	0715		0032.5	0732					
			CULG	0143.5	0144	1							IIIB,U
			CULG	0401.5	0402.5	1	0401.5	0402.5	1				IIIG,V,U,U
			CULG				0415.5	0416.5	1				IIIG
			CULG	0426.5	0427.5	1							DCIM
			CULG				0709.5		1				IIIB
	0515	0732	WEIS				0709.6	0709.9	3				IIIB,U
			CULG	0714	0714.5	1	0714	0714.5	1				IIIB
			WEIS				0714.2	0714.7	2				IIIG
			WEIS				0852.6	0854.3	2				IIIGG
			WEIS				0855.6	0856.7	1				IIIG
			WEIS				1015.6	1015.8	2				IIIB
			WEIS				1039.2	1039.4	1				IIIB
			WEIS				1123.6	1124.6	1				IIIB
			WEIS				1126.0	1126.2	1				IIIB
			WEIS				1130.5	1130.7	2				IIIB
			WEIS				1136.8	1138.3	2				IIIG
			WEIS				1158.8	1159.2	2				IIIG
			WEIS				1218.0	1218.1	1				IIIB
			WEIS				1247.1	1247.3	2				IIIG
	1304	2315	HARV				1312	2300	1				INW
			HARV				1353	1402	2				IIIGG
			WEIS				1353.2	1359.8	2				IIIGG
			HARV	1356	2214	1							INW
			HARV				1404	1417	2				IIIGG
			WEIS				1404.0	1404.4	1				DCIM
			WEIS				1406.7	1406.8	1				IIIB
			WEIS				1413.5	1413.7	1				IIIG
			HARV				1424	2008	2				IIIN
			WEIS				1434.8	1435.2	1				IIIG
			HARV	1435		1	1435		1				IIIG
			WEIS				1439.1	1439.4	1				IIIG
			WEIS	1627.2	1628.4	2							DCIM
			HARV	1629	1628	3	1627	1628	3				IIIGG
			WEIS				1632.4	1632.7	1				IIIG
			WEIS				1640.7	1641.3	1				IIIG
			WEIS				1648.8	1649.1	3				IIIB
			HARV				1649		3				IIIB
			WEIS				1656.6	1656.7	1				IIIB
			HARV				1700		2				IIIG
			HARV				1812	1815	2				IIIGG
			HARV	1834		1	1834		2				IIIGG
			HARV	1845	1846	1	1845	1846	2				IIIGG
			HARV				1923	1930	2				IIIGG
	2033	2400	CULG	2222.5	2223		2222.5	2223					IIIG,W
			HARV				2223		2				IIIG
			CULG				2252.5	2253 5	I				
			CULG				2321.5	2400					IIIS,W
02	0000	0732	CULG				0000 0	0025					IIIS,W
			CULG	0003	0004.5								IIIG,W
			CULG				0003	0005	1				IIIG
			CULG				0049	0612.5					IIIN,W
			CULG				0056	0056.5	2	0056	0056.5	1	IIIG
			CULG				0238		1				IIIB
			CULG	0339	0343								IIIN,W
			CULG				0420	0533.5	1				IIIN
			CULG	0448.5	0449	1	0448.5	0449.5	3	0448.5	0449	1	IIIG
	0516	0857	WEIS				0611.5	0626.3	3				IIIGG
			CULG	0618	0619	1	0616	0619.5	3				IIIGG
			CULG				0621	0626	1				IIIGG
			WEIS				0630.3	0631.3	2				IIIGG
			CULG				0649	0650					IIIG,W
			CULG				0649.5	0704	2			II	
			WEIS				0649.6	0651.4	1			II	HARM

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
02			CULG				0651	0651.5					IIIG,U
			CULG				0655	0655.5	2				IIIG
			WEIS				0656.0	0704.4	3				IIIG
			CULG				0656.5	0657.5	2				IIIG
			CULG				0658.5	0700	3				IIIGG
			CULG				0700.5	0704					IIIG,W
			WEIS				0748.2	0748.9	2				IIIG
			WEIS				0828.4	0829.2	1				IIIG
			WEIS				0847.1	0848.4	2				IIIG
			WEIS				0851.3	0851.7	1				IIIB
			WEIS				0853.3	0853.6	1				IIIG
	0923	1727	WEIS				0935.8	0936.1	1				IIIB
			WEIS				1025.8	1026.3	3				IIIG
			WEIS				1045.5	1045.7	2				IIIG
			WEIS				1242.7	1243.9	2				IIIG
	1304	2315	HARV				1500	2308	1				IN
			HARV				1520		2				IIIG
			HARV	1529	2300	1							IIIN
			HARV				1623		2				IIIG
			WEIS				1623.2	1624.6	2				IIIG
			WEIS				1628.7	1628.9	2				IIIG
			HARV				1629		2				IIIG
			HARV				1704	1706	2				IIIG
			WEIS				1704.4	1704.6	1				IIIB
			HARV				1712	2311	1				IIINW
			HARV				1716	1723	2				IIIGG
	2032	2400	CULG				2032	2400					IS,W
			CULG				2038	2400					IIIN,W
			HARV				2113	2114	2				IIIG
			CULG				2113.5		1				IIIB
			CULG				2122.5	2123	1				IIIG
			CULG				2123.5	2125.5	2				IIIG
			HARV	2124		1	2123	2125	3				IIIGG
			HARV	2200		3	2200		1				IIIGG
			CULG	2215	2230								IIIN,W
			HARV				2216		3				IIIG
			HARV				2236	2237	2				IIIG
			CULG				2236	2237	1				IIIG
			CULG				2400		1				IIIB
03	0000	0732	CULG				0000	0308					IN,W
			CULG	0051	0052		0000	0109					IIIN,W
			CULG				0103		1				IIIB
			CULG				0125		1				I
			CULG	0125	0145								IN,W
			CULG	0337	0337.5	1							DCIM
			CULG				0353	0354					IIIB,W
			CULG	0459	0459.5	1	0459	0500.5	2	0459.5	0500	1	IIIG
			CULG				0510.5		1				IIIB,U
			CULG				0600.5	0602	1				IIIG
	0517	1202	WEIS				0600.5	0601.9	2				IIIG
			WEIS				0632.7	0635.2	2				IIIG
			CULG	0634	0634.5		0632.5	0635					IIIGG,W
			CULG	0637.5	0638	1	0638	0639	2				IIIG
			WEIS				0637.7	0639.6	3				IIIG
			CULG				0722.5	0723	1				IIIB
			WEIS				0858.6	0859.1	2				IIIG
			WEIS				0907.2	0907.4	1				IIIB
			WEIS				0923.7	0924.3	2				IIIG
			WEIS				0955.7	0955.8	2				IIIB
			WEIS				0959.2	0959.6	2				IIIG
			WEIS				1007.3	1009.4	1				IIIG
			WEIS				1013.6	1015.2	3				IIIGG
			WEIS				1108.9	1112.3	3				IIIG
			WEIS				1144.4	1146.8	2				IIIG
			WEIS				1200.6	1201.7	2				IIIG
	1215	1245	WEIS										IIIG
	1304	2325	HARV				1312	2325	1				IN
			HARV				1337	2319	2				IIIN
			HARV	1357		3	1356	1358	3				IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
03			HARV				1402	1403	3				IIIGG,U
			HARV	1415		3	1412	1416	3				IIIGG
			HARV				1425	1429	3				IIIGG
			HARV	1518	1519	1	1518	1521	3				IIIGG
			HARV	1544		1	1544	1545	3				IIIGG
			HARV	1601		1	1559	1603	2				IIIGG
			HARV	1613	1614	3	1612	1614	3				IIIGG,V
	1656	1725	WEIS										
			HARV				1749	1801	3				IIIGG
			HARV				1803	1816	3				IIIGG
			HARV				1840	1843	2				IIIGG
			HARV				1904	1905	3				IIIGG
			HARV				1918	1919	2				IIIGG,U
			HARV	1950	1951	1	1950	1953	2				IIIGG
			HARV	2034	2035	1	2034	2035	1				IIIGG
	2032	2400	CULG				2050.5	2051.5	1				IIIG
			CULG	2107	2108	2	2107	2108	2				IIIG,U
			HARV				2107	2108	3				IIIGG
			CULG				2110.5		1				IIIB
			CULG	2125.5	2127	1	2125.5	2127	2				IIIGG,U
			HARV	2127		2	2125	2128	3				IIIGG,U
			HARV				2131	2132	3				IIIG
			CULG				2131.5	2132	1				IIIG,U
			CULG				2233.5	2234					UNCLF
			CULG				2251.5		1				IIIB
			CULG	2256	2309								IS,W
			HARV	2256	2305	3	2301	2305	2				IIIGG
			CULG							2258	2325	1	SWF
			CULG				2315	2316.5	1				IIIG,V
			CULG				2318	2319	1				IIIG
			CULG				2320.5	2400	1				IS
			CULG				2326.5	2334	1				II
			CULG				2329	2400	1				IV
			CULG				2339.5	2340.5	1				IIIG
04	0000	0731	CULG				0000	0235	1				IV
			CULG				0000	0731					IIIN,W
			CULG				0000	0217					IS,WDC
			CULG				0217	0731					IS,W
			CULG				0219	0220	1				IIIG
			CULG	0242.5	0243	1	0242.5	0243	1				IIIG
			CULG				0343.5	0344	1				IIIG,V
			CULG	0451.5		2	0451.5		3				IIIB,U
	0518	1723	WEIS				0600.9	0601.1	1				IIIG
			CULG				0613	0613.5	1				IIIB,U
			WEIS				0613.2	0613.4	1				IIIG
			WEIS				0622.2	0622.5	2				IIIG
			WEIS				0759.5	0759.6	1				IIIB
			WEIS				0948.8	0950.4	3				IIIG
	1304	2255	HARV				1312	2238	1				IN
			HARV				1407	2236	1				IIIN
			HARV				1707	1708	3				IIIG,U
			HARV				1711		2				IIIG
	2031	2400	CULG										IIIN,W
			HARV	2033		1							I
			CULG				2106	2106.5	2				IIIG
			CULG				2107.5		1				IIIB
			CULG	2149	2152								IN,W
			CULG	2152.5	2153		2152.5	2153					IIIG,W
			HARV				2153		2				IIIG
			HARV	2156	2157	3							IIIGG
			CULG				2236.5		1				IIIB
			CULG	2511	0623	1							IIIN
05	0000	0730	CULG				0000	0703					IIIN,W
			CULG				0021	0730	1				IIIN
			CULG	0050.5	0051	1	0050.5	0051.5	1				IIIG
			CULG				0058	0606					IN,W
			CULG	0143	0143.5	2							IIIG
			CULG				0218	0235					IS,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
05			CULG				0421	0421.5	3	0421	0421.5	1	IIIG
			CULG	0438	0438.5	1							IIIG
			CULG				0445	0730					IS,W
			CULG	0514	0544.5	1							IIIG
	0521	1252	WEIS				0526	1720	2				IIIN
	1306	1721	WEIS				0544	1654	2				IN
			WEIS				0659.1	0700.3	2				IIIG
			CULG	0659.5	0700	1	0659	0700	1				IIIG,U
			WEIS				0705.7	0707.8	3				UG
			CULG	0706	0708	2	0706.5	0707.5	1				UNCLF
			CULG				0710.5	0730					IIIS,W
			WEIS				0710.7	0712.2	2				IIIGG
			CULG				0719		1				IIIG,DC
			WEIS				0720.0	0722.3	3				IIIG
			CULG				0722		2				IIIB
			WEIS				0758.1	0759.6	2				IIIG
			WEIS				0811.4	0812.3	3				IIIG
			WEIS				0850.4	0856.3	2				IIIGG
			WEIS				0913.8	0914.4	2				IIIG,U
			WEIS				1013.7	1014.1	3				IIIG
			WEIS				1017.0	1018.7	3				IIIG
			WEIS				1031.3	1032.1	3				IIIG
			WEIS				1042.7	1044.2	3				IIIG
			WEIS				1058.7	1059.4	2				IIIG
			WEIS				1125.4	1125.5	3				RS
			WEIS				1151.0	1152.3	3				IIIGG
			WEIS				1154.7	1157.4	3				IIIGG
			WEIS				1204.0	1207.3	3				IIIG
			WEIS				1215.7	1216.4	2				IIIG
			WEIS				1226.3	1229.9	2				DCIM
	1304	2335	HARV				1307	2320	1				IN,DCN
			HARV				1310	2317	2				IIIN
			WEIS				1311.7	1312.2	2				IIIG
			HARV				1312		2				IIIG
			HARV				1313	1319	3				DC
			WEIS				1318.7	1319.4	3				IIIG
			HARV	1319		1	1319		2				IIIG
			WEIS				1336.7	1339.1	3				IIIGG
			HARV	1337	1338	3	1337	1339	2				IIIGG
			HARV	1347		3							IIIG
			WEIS				1411.6	1421.4	3				IIIGG
			HARV	1416		1	1411	1423	3				IIIGG
			HARV				1459		2				IIIG,U
			WEIS				1517.4	1520.8	3				IIIGG
			HARV	1518		1	1513	1520	3	1517	1520	2	IIIGG
			WEIS				1602.9	1610.0	3				IIIGG
			HARV	1607	1608	1	1603	1617	3	1605	1609	2	IIIGG
			HARV	1627	1638	3							IIIG
			HARV				1649	1651	2	1649	1651	2	IIIGG
			WEIS				1709.7	1711.9	3				IIIGG
			HARV	1710	1714	2	1706	1714	3	1710	1713	2	IIIGG,V
			HARV				1717	1724	2				IIIG
			HARV				1808	1809	3	1808	1809	2	IIIG
			HARV	1818	1824	2	1816	1824	3	1818	1823	2	IIIGG,V
			HARV	1830		2	1827	1838	3				IIIGG
			HARV				1907	1908	3	1908		2	IIIG
			HARV				1917		2				IIIG,U
			HARV	1929		1	1929	1933	3	1929		2	IIIG,V
			HARV				1956	1959	3	1956	1957	2	IIIGG,V
			HARV				2031	2032	3				IIIG
			CULG				2032	2224					IIIS,W
	2032	2142	CULG				2032	2400					IN,W
			CULG				2041	2042	2				IIIG,V
			HARV				2041	2044	3	2041	2042	2	IIIG
			CULG				2043.5	2044.5	1				IIIG
			CULG				2056	2100	1				IIIGG
			HARV				2056	2100	2				IIIGG
			HARV				2205	2209	2				IIIGG
	2145	2400	CULG				2206	2208.5	2				IIIG
			CULG				2224	2247.5	1				IIIS

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
05			HARV				2225	2228	2				IIIG
			HARV	2239		2	2236	2247	3				IIIGG
			CULG				2255	2400	1				IIIN
			CULG				2345	2347.5	1				IIIG
			CULG				2355	2358	1				I,DC
			CULG	2359.5	2400	1	2359	2400	1	2359.5	2400		IIIS
06	0000	0730	CULG	0000	0002	1	0001.5	0006.5	2	0000	0006	1	IIIS
			CULG							0001	0010	2	SWF
			CULG				0008.5	0015	1			II	
			CULG				0021	0715	1				IIIN
			CULG				0028.5	0033	1	0032	0033	1	UNCLF
			CULG				0120	0615	1				IIIB,U,N
			CULG				0530	0532	1				IIIG,DC
			CULG				0535.5		1				IIIG,DC
			CULG	0612	0612.5	1	0611.5	0612.5	2				IIIG,V
	0702	1719	WEIS				0715	1650					IIIN
			WEIS				0741.3	0756.9	3				IIIGG
			WEIS				0825.9	0826.7	3				IIIG
			WEIS				1002.2	1002.5	3				IIIB
			WEIS				1141.6	1142.7	3				IIIG
			WEIS				1147.7	1147.9	2				RS
			WEIS				1148.2	1148.9	3				IIIG
			WEIS	1154.4	1155.3	2							RS
			WEIS				1208.2	1210.6	3				IIIG
			WEIS	1223.9	1224.3	2							IIIG
			WEIS				1245.7	1250.2	3				IIIGG
	1305	2245	HARV				1319	2220	1				IN
			HARV	1322	2245	1							IN
			WEIS	1346.6	1346.8	2							IIIG
			HARV	1347	2038	2							IIIN
			HARV				1407	2216	2				IIIN
			WEIS				1432.7	1434.3	3				IIIG
			HARV				1433	1434	3				IIIG,V
			HARV				1444	1445	3				IIIG,V
			WEIS				1444.2	1445.8	3				IIIG
			WEIS				1508.9	1511.8	3				IIIG
			HARV				1509	1513	3				IIIG
			WEIS				1512.9	1513.6	3				IIIG
			HARV	1518	1523	3							IIIG,U
			WEIS	1521.8	1525.7	3							IIIG
			WEIS				1530.3	1537.2	3				V/IIIGG
			HARV	1532		1	1530	1537	3	1532		2	IIIGG,V,U
			WEIS				1604.6	1605.8	3				IIIG
			HARV	1624	1625	3	1625	1628	3	1628		2	IIIG
			WEIS				1626.7	1626.9	3				IIIB
			WEIS				1628.3	1628.9	3				IIIG
			HARV	1651	1654	2	1647	1655	3				IIIGG,V
			WEIS				1651.2	1653.2	3				IIIG
			HARV				1733	1735	3	1733	1735	2	IIIG,V
			HARV	1813		2	1813	1815	3				IIIG
			HARV	1902	1908	3	1903	1906	2				IIIGG
			HARV	1934	1937	3	1935	1936	2				IIIG,U
	2031	2400	CULG				2031	2049					IS,W
			CULG				2041	2400					IIIN,W
			CULG	2102	2102.5	1							DCIM
			HARV	2102		3							IIIG
			HARV	2142	2148	1	2142	2147	2				IIIGG
			HARV	2142	2200	2						IV	
			CULG	2142	2143								UNCLF,W
			CULG	2145.5	2147	2	2145.5	2147	1				IIIG,U
			CULG				2148.5	2152				II	W
			CULG	2152	2400								IN,W
			CULG				2216	2216.5	2				IIIG
			CULG	2353	2357	1							DCIM,N
07	0000	0730	CULG				0011	0024	1	0010	0024	2	SWF
			CULG	0054	0104	1							IIIS
			CULG				0054	0103	1				IIIS,U
			CULG	0054.5	0105	1	0055.5	0100	1				CONT

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
07			CULG				0055.5	0056.5	1				IIIG,U
			CULG				0059	0114					II
			CULG	0118.5	0120	2							DCIM,RS
			CULG	0120	0122	1							DCIM
			CULG	0235	0337								IN,W
			CULG				0252	0252.5	1				IIIG,U
			CULG	0343.5	0344	1	0343.5	0344.6	2				IIIG
			CULG	0401	0406	1							DCIM,N
			CULG				0439	0720	1				IIIN
			CULG	0501	0504	2							DCIM
			CULG				0512	0523	1	0512	0525	2	SWF
			CULG				0538.5	0539	2	0538.5	0539	1	IIIB
	0523	1020	WEIS				0538.7	0538.9	2				IIIB
			WEIS				0702.4	0703.7	3				IIIG
			WEIS				0708.2	0708.4	1				IIIB
			WEIS				0719.6	0719.8	2				IIIB
			WEIS				0720.9	0721.1	1				IIIB
			WEIS				0748.0	0748.3	3				IIIB
			WEIS				0804.4	0804.9	2				IIIG
			WEIS				0813.9	0814.1	1				IIIB
			WEIS				0820.4	0820.9	2				IIIG
			WEIS				0823.6	0823.7	1				IIIB
			WEIS				0825.1	0825.3	1				IIIB
			WEIS				0831.4	0833.2	3				IIIG
			WEIS				0842.2	0842.4	2				IIIG
			WEIS				0846.9	0847.2	2				IIIB
			WEIS				0920.4	0920.7	2				IIIG
			WEIS				1007.4	1007.7	1				IIIB
	1024	1719	WEIS				1024.8	1025.1	1				IIIG
			WEIS				1036.2	1044.2	3				RS
			WEIS				1122.8	1122.9	1				IIIB
			WEIS				1214.8	1222.6	3				IIIGG,U,RS
			WEIS				1302.7	1303.0	1				IIIB
			WEIS				1314.2	1314.8	3				IIIG
			WEIS				1418.7	1418.8	2				IIIB
			WEIS				1421.2	1421.6	3				U
			WEIS				1452.8	1455.3	2				IIIG,U
			HARV				1453	1455	2				IIIG
			HARV				1528	1531	3				IIIG
			WEIS				1528.6	1528.8	2				IIIG
			WEIS				1530.6	1531.4	3				U
			WEIS				1557.9	1558.2	3				U
			HARV				1558		3				IIIG,U
			WEIS				1608.8	1609.0	1				IIIB
			HARV				1609	2335	2				IIIN
			WEIS				1618.3	1618.9	2				IIIG,U
			WEIS				1654.7	1655.2	1				IIIG
			WEIS				1658.7	1700.4	2				IIIG
			HARV	1659	2350	1							IN
			WEIS				1708.9	1709.3	3				IIIG
			HARV				1809		3				IIIG,U
			HARV				1910	1912	2				IIIG
			HARV				1919	1920	3				IIIG
			HARV				2017	2018	2				IIIG
	2030	2400	CULG				2030	2400					IIIN,W
			CULG				2033	2335	1				IIIN
			HARV				2033		2				IIIG
			HARV				2100	2103	2				IIIG
			HARV				2139	2140	2				IIIG
			CULG	2222.5	2235	1							CONT
			HARV	2223	2227	3	2223	2228	3				IIIGG,V,U
			CULG							2225	2231	1	SWF
			CULG				2227	2249	2				II H
			HARV				2227	2244	3				II
			CULG				2302	2302.5	1				IIIBUUNCLF
			CULG				2321	2322	2				IIIG,U
			HARV				2321	2322	2				IIIG
			CULG				2226.5	2227.5	3				IIIG,V
08	0000	0730	CULG				0000	0730					IIIN,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
08			CULG				0005	0550	1				IIIN
			CULG	0017	0017.5	1	0016.5	0019	3				IIIG,V
			CULG	0056	0333	1							DCIM,N
			CULG				0135	0136.5	2	0135.5	0136.5	1	IIIG
			CULG				0329.5	0330	2	0329.5	0330	1	IIIG,V
			CULG				0331.5	0333	2	0332	0333	1	IIIG
			CULG	0333	0336	1							DCIM,N
			CULG				0335.5		1				RS
			CULG	0356	0356.5	2	0356	0356.5	1				IIIG
			WEIS				0536.0	0542.9	3				IIIGG/VRS
			CULG	0539	0542	2	0538	0542	3	0539	0540.5	1	IIIGG,V
	0522	1716	WEIS				0545	1657	2				IIIN
			CULG				0549	0555	1				DC
			WEIS				0740.2	0741.6	3				IIIG,U
			WEIS				0743.2	0746.0	3				IIIG,U
			WEIS				0747.7	0748.0	2				IIIB
			WEIS				0750.5	0751.3	3				IIIG
			WEIS				0752.4	0753.2	3				IIIG
			WEIS				0844.8	0845.6	3				IIIG
			WEIS				0852.6	0854.8	3				IIIG
			WEIS				0902.5	0904.8	3				IIIG
			WEIS				0952.3	0954.7	2				U
			WEIS				0958.4	1000.6	3				IIIGG,RS
			WEIS				1027.8	1029.2	3				IIIG
			WEIS				1032.0	1033.0	3				IIIG
			WEIS				1041.2	1041.4	3				IIIG
			WEIS				1044.3	1044.8	3				IIIG
			WEIS				1050.3	1051.1	3				IIIG
			WEIS				1052.7	1053.2	3				IIIG
			WEIS				1055.5	1057.9	3				IIIGG/V
			WEIS				1103.3	1105.3	3				IIIG
			WEIS				1123.7	1124.4	3				IIIG
			WEIS				1138.8	1142.6	3				IIIGG
			WEIS				1150.3	1151.1	3				IIIG
			WEIS				1226.9	1228.8	3				IIIGG,U
	1251	2315	HARV	1319	2116	3	1319	2203	2				IIIN
			WEIS				1329.6	1329.8	2				IIIG
			WEIS				1330.9	1335.9	3				IIIGG
			WEIS				1341.3	1343.3	3				IIIG
			HARV				1342	1343	3				IIIG
			HARV	1353	1354	1	1353	1354	2				IIIG
			WEIS				1353.0	1353.8	3				IIIG
			HARV	1421	1423	1	1421	1423	3				IIIGG,V
			WEIS				1421.3	1423.7	3				IIIGG
			WEIS				1447.1	1448.7	3				IIIG
			WEIS				1513.7	1515.6	2				IIIG,U
			HARV				1514	1515	2				IIIG
			HARV	1631	1632	1	1631	1634	2				IIIG
			HARV	1708	1710	2							IIIG
			HARV	1723	1724	1	1723	1725	3				IIIG,U
			HARV				1800	1801	2				IIIG
			HARV				1839	1840	2				IIIG
			HARV	1917	1929	2	1917	1929	3	1917	1918	2	IIIGG
			HARV	2028	2033	3	2031	2033	2				IIIGG,V
	2030	2400	CULG	2030	2032.5	2							CONT
			CULG				2030	2400					IIIN,W
			CULG				2031	2203	1				IIIN
			CULG				2032	2033.5	1				CONT
			CULG				2036	2037	1				IIIG
			HARV				2036	2037	3				IIIG
			HARV	2051	2054	2	2051	2054	3	2053		2	IIIGG
			CULG				2052	2054	2				IIIGG,V
			CULG	2304	2305	1	2304		1				IIIG
			HARV				2304		3				IIIG
			CULG	2322.5	2323.5	3	2322	2325	3	2323	2324	1	IIIGG,V
			CULG	2331.5	2333	2	2331.5	2334	3	2332	2333	1	IIIGG
09	0000	0516	CULG				0010	0346	1				IIIN
			CULG				0010	0010.5	2				IIIB
			CULG				0010.5	0011.5	2	0010.5	0011	1	IIIB,V

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
09			CULG	0029.5	0030	2							IIIG
			CULG	0038.5	0039	1							IIIG
			CULG	0043	0043.5	1							IIIG
			CULG	0113.5	0115	3	0113.5	0116	2				IIIG,V
			CULG							0116	0125		SWF,W
			CULG				0122.5	0133	2				II H
			CULG				0145.5	0147	2				IIIG
			CULG	0146.5	0147	2							DCIM
			CULG				0431	0431.5	2				IIIB,U
			CULG				0440.5		2				IIIB
			CULG	0506.5	0508	2	0506.5	0508.5	2				IIIG,V
	0542	0730	CULG				0544	0701	1				IIIN
			CULG	0547	0639.5	2	0547	0654	2				IIIG,V
	0549	0659	WEIS				0550.7	0551.2	3				IIIG
			WEIS				0553	1630					IIIN
			WEIS				0557.7	0557.7	2				U
			WEIS				0604.7	0606.4	3				IIIG
			WEIS				0638.9	0640.8	3				IIIG
			WEIS	0638.9	0639.8	2							DCIM
			WEIS				0652.4	0655.3	3				IIIG
	0741	1715	WEIS				0748.2	0748.4	2				IIIB,U
			WEIS				0758.4	0758.7	2				U
			WEIS				0911.9	0913.3	3				IIIG
			WEIS				0919.4	0919.9	2				IIIG
			WEIS	0948.9	0949.6	2							DCIM
			WEIS				0949.0	0951.3	3				IIIGG
			WEIS				0954.2	0955.4	3				IIIGG
			WEIS				1056.9	1058.3	2				IIIG
			WEIS				1100.3	1101.9	3				IIIG
			WEIS				1130.3	1130.5	3				IIIB
			WEIS				1136.0	1136.6	2				U,HARM
			WEIS				1138.8	1139.2	2				IIIG
			WEIS				1143.2	1157.6	3				IIIGG/V
			WEIS	1147.3	1149.4	2							DCIM
			WEIS				1201.5	1224.0	3				II HARM,H
			WEIS				1257.5	1257.8	3				IIIB
	1304	2320	HARV				1305	1307	2				IIIG
			WEIS				1306.9	1309.7	3				IIIG
			HARV				1309	2316	2				IIIN
			HARV	1330	2109	1							IN
			WEIS				1336.6	1336.8	2				IIIG
			WEIS				1339.4	1342.6	3				IIIG
			HARV	1340	1342	1	1339	1342	3				IIIGG
			HARV	1346	1347	1	1346	1347	3				IIIG
			WEIS				1346.1	1347.3	3				IIIG
			WEIS				1353.8	1357.3	2				IIIG
			HARV				1354	2316	1				IN
			HARV	1354	1355	1	1354	1355	2				IIIG
			HARV	1359		3	1359	1400	3				IIIG,V
			WEIS				1359.1	1400.3	3				IIIG
			WEIS				1410.8	1412.3	3				IIIG
			HARV	1411		2	1411		3				IIIG
			WEIS				1415.1	1415.9	3				IIIG
			HARV				1429		3				IIIG
			WEIS				1429.2	1429.9	3				IIIG
			HARV				1539	1540	3				IIIG
			WEIS				1539.7	1540.5	3				IIIG
			HARV				1613		3				IIIG
			WEIS				1613.5	1613.9	3				IIIG
			HARV				1619		3				IIIG
			WEIS				1619.3	1619.8	3				IIIG
			HARV				1621	1636	3				IIIGG,V
			WEIS				1630.6	1634.4	3				IIIGG
			HARV	1649	1650	2	1649	1700	2				IIIGG
			WEIS				1649.4	1652.0	1				IIIG
			HARV				1652	1658	3				II
			WEIS				1652.2	1659.7	3				II HARM,H
			HARV				1757	1758	2				IIIG
			HARV				1806	1808	2				IIIG
			HARV				1842	1846	3				IIIG,U

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
09			HARV				1852	1855	2				IIIG
			HARV				1859	1900	3				IIIG,U
			HARV				1955	1956	3				IIIG
	2029	2400	CULG				2029	2400					IIIN,W
			HARV				2031	2032	3				IIIG
			CULG				2032	2334	1				IIIN
			HARV				2106		3				IIIG
			CULG				2131.5	2132	2				IIIB,V
			HARV				2132		2				IIIG
			HARV				2149		2				IIIG
			CULG				2217.5	2219	2				IIIG,U,V
			HARV				2218	2219	3				IIIG
			CULG				2332.5	2333	2				IIIG
			CULG				2351.5	2352.5	2				IIIG
10	0000	0729	CULG				0002	0729					IIIN,W
			CULG				0014	0716	1				IIIN
			CULG				0021	0024.5	2				IIIGG
			CULG				0037.5		1	0037.5		1	IIIB
			CULG	0113	0700	1							IIIN
			CULG	0141.5	0142.5	2							DCIM
			CULG	0143	0143.5	1	0142.5	0144.5	2				IIIG,UNCLF
			CULG				0154.5	0155	1	0154.5	0155.5	1	IIIG,DC
			CULG				0217.5	0219.5	2	0218	0219	1	IIIG
			CULG	0221	0222	1							DCIM
			CULG	0242.5	0245.5	2	0242.5	0245	3	0242.5	0245	2	IIIGG,V
			CULG	0511	0701								IN,W
	0525	1507	WEIS				0527	1708	2				IIIN
	1606	1713	WEIS				0605.0	0606.2	2				IIIG
			WEIS				0628.6	0629.0	2				IIIG
			WEIS				0659.4	0659.9	2				IIIG
			WEIS				0732.6	0733.1	3				IIIG
			WEIS				0752.9	0752.4	2				IIIG,U
			WEIS				0808.7	0810.3	3				IIIG
			WEIS				0924.8	0925.1	2				IIIG
			WEIS				0928.5	0929.9	3				IIIG
			WEIS				1012.3	1014.1	2				IIIG
			WEIS				1104.4	1105.9	2				IIIG
			WEIS				1114.6	1115.0	2				IIIG
			WEIS				1122.5	1123.6	2				IIIG
			WEIS				1150.1	1152.8	3				IIIG
			WEIS				1212.7	1216.9	3				IIIGG
	1304	2335	HARV	1308	2321	1			1				IN
			WEIS				1313.4	1314.9	3				IIIG
			HARV				1314		2				IIIG
			HARV	1324	2318	2							IIIN
			HARV				1336	2321	1				IN
			WEIS				1343.1	1347.6	3				IIIG
			HARV				1344		2				IIIG
			HARV	1409		1	1409		3				IIIG
			WEIS				1409.3	1409.6	2				IIIG
			WEIS				1448.8	1451.2	2				IIIG
			WEIS				1457.7	1500.2	2				IIIG
			WEIS				1616.8	1625.7	3				IIIGGVDCIM
			HARV				1617	1620	3	1618	1620	2	IIIGG,V
			HARV				1619	1620	3				I
			HARV				1622	1626	3				I
			HARV	1624	1625	1	1622	1625	3				IIIGG
			HARV				1705	1708	2				IIIGG
			HARV	1724	1728	3	1721	1729	3	1727	1728	2	IIIGG,V
			HARV	1759	1800	1	1758	1801	2				IIIG
			HARV	1915		2	1915	1916	3				IIIG,V
	2040	2400	CULG				2040	2400					IIIN,W
			CULG	2106	2400		2106	2400					IN,W
			CULG				2110	2354	1				IIIN
			CULG				2123	2124.5	3				IIIG,V
			HARV				2123	2124	3				IIIG
			HARV				2130	2132	2				IIIG
			HARV				2212		2				IIIG
			CULG				2304.5						RSDP,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
11	0000	0729	CULG	0000	0052		0000	0214					IS,W
			CULG				0000	0729					IIIN,W
			CULG				0006	0724	1				IIIN
			CULG				0046.5	0048	1				IIIG,DC
			CULG	0052	0719								IN,W
			CULG	0139	0140	1	0139.5	0141	2	0139.5	0405	2	IIIG,V
			CULG	0258	0258.5	1	0258	0259	2	0258	0258.5	1	IIIG,V
			CULG	0318	0320	1							CONT
			CULG							0320	0336	1	SWF
			CULG				0514		2	0514		1	IIIB
			CULG				0514.5	0517	2				IIIGG,U
			WEIS				0620.2	0629.6	2				IIIGG
	0617	1711	WEIS				0621	1654	2				IIIN
			WEIS				0623	1630	2				I
			CULG				0627	0629	2				IIIGG
			CULG				0634	0729	1				IS,DC
			CULG	0654	0654.5	2							IIIG
			WEIS				0654.4	0655.3	3				IIIG
			WEIS				0710.5	0713.2	2				IIIG
			CULG	0713	0714.5	1							DCIM
			WEIS				0717.2	0717.6	2				IIIG
			WEIS				0719.6	0719.9	1				IIIG
			WEIS				0722.9	0723.6	2				IIIG
			WEIS				0752.1	0802.6	3				IIIGG/V
			WEIS				0946.0	0947.0	3				IIIG
			WEIS				1059.6	1059.9	3				IIIG
	1304	2250	HARV				1343	1345	2				IIIG
			WEIS				1344.3	1343.7	2				IIIG
			HARV				1353	2250	1				IN
			HARV				1400		2				IIIG
			HARV				1401	2151	2				IIIN
			HARV				1439	1440	2				IIIG
			WEIS				1508.9	1510.9	3				IIIG
			HARV				1509	1512	3				IIIG
			WEIS				1608.8	1609.5	2				IIIG,U
			HARV	1612	1615	3	1609	1618	3	1615	1615	2	IIIGG,V
			WEIS				1612.1	1618.4	3				IIIGG
			WEIS				1623.0	1629.4	2				IIIG
			HARV	1629		1	1621	1629	3				IIIGG
			HARV	1810	1815	3	1809	1818	3				IIIGG,V
			HARV				2012	2013	3				IIIG
	2042	2400	CULG				2042	2150	1				IS,DC
			CULG				2042	2400					IIIS,W
			CULG				2052	2358	1				IIIN
			HARV				2132	2135	3				IIIGG,U
			CULG	2133	2133.5	1							DCIM
			CULG	2139	2144	1							DCIM
			HARV	2139	2143	3	2139	2143	3				IIIGG
			CULG				2140.5	2141.4	3				IIIG,V
			CULG				2151	2310					IS,W
			CULG				2152.5	2153.5	2				IIIG,V
			HARV				2153	2154	2				IIIG
			CULG	2254.5	2255	1	2254.5	2255.5	2				IIIG,U
			CULG				2310	2400					IN,W
			CULG							2312	2330	1	SWF
12	0000	0728	CULG				0000	0728					IIIN,W
			CULG	0034	0728								IN,W
			CULG				0051.5	0054	2				IIIG,V
			CULG				0053	0556	1				IIIN
			CULG	0057.5	0100	2	0057.5	0100.5	2	0057.5	0100	1	IIIGG,V
			CULG				0103	0110					IN,W
			CULG				0226	0227.5	1	0226	0227.5	1	IIIG
			CULG				0255		1				RSDP
			CULG				0433.5	0434	2				IIIB,V
			CULG				0516	0517	2				IIIG,V
			CULG	0527	0536	2	0525	0536	2	0525	0532	1	IIIGG,V,N
	0529	1302	WEIS				0529.7	0537.4	3				IIIG
			WEIS				0542.3	0543.1	1				IIIG
			WEIS				0546	1604	1				IN

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
12			CULG				0550	0551	2				IIIG
			WEIS				0550.0	0556.9	3				IIIGG
			WEIS				0625	1704	2				IIIN
			WEIS				0741.9	0744.2	3				IIIG
			WEIS				0901.6	0902.9	3				IIIG
			WEIS				0959.1	0959.8	3				IIIG
			WEIS				1029.0	1030.3	3				
			WEIS				1049.8	1050.4	3				IIIG
			WEIS				1112.4	1213.6	3				IIIG
			WEIS				1139.3	1139.9	3				IIIG
			WEIS				1212.3	1212.9	2				IIIG
	1304	2400	HARV				1304	1643	1				IN
	1307	1709	WEIS				1333.5	1335.9	2				IIIG
			HARV				1334	1336	2				IIIG
			HARV				1345	1348	3				IIIGG
			WEIS				1345.4	1348.2	3				IIIG
			HARV	1352	1541	1							IN
			HARV				1401	2138	2				IIIN
			HARV				1412	1415	2				IIIG
			WEIS				1412.2	1414.1	1				IIIG
			HARV	1428		2	1428	1431	2				IIIG
			WEIS				1435.6	1442.2	3				IIIGG
			HARV	1436	1441	2	1435	1442	3				IIIGG,V
			HARV				1502		2				IIIG
			WEIS				1525.7	1528.6	3				IIIGG/V
			HARV				1526	1529	3	1526		2	IIIGG,V
			WEIS				1528.2	1545.9	3				IIIGG/V
			HARV				1537	1546	3				IIIGG,V
			HARV				1643	2400	2				I
			HARV	1755	1759	3	1752	1801	3				IIIGG,V
			HARV				1808	1810	3				IIIGG,U
	2041	2400	CULG				2041	2400	1				IS
			CULG				2041	2400					IIIN,W
			CULG				2041	2400	1				DC,N
			CULG	2059	2150	1							IS
			CULG				2127	2400	1				IIIN
			HARV				2137	2138	2				IIIG
			CULG	2152.5									IIIB,W
			HARV				2218		3				IIIG,U
			CULG				2308	2323					DPN
			HARV	2322		3							IIIG
13	0000	0728	CULG				0000	0350	1				IS,DC
			CULG				0000	0728					IIIS,W
			CULG	0007	0014	1							CONT
			CULG				0008	0020	1	0008	0025	2	SWF
			CULG	0047.5		1							IIIB
			CULG				0350	0728					IS,W
			CULG				0456.5	0457	2	0456.5	0457	1	IIIG
			CULG				0507	0507.5	2	0507	0507.5	2	IIIB
	0530	1707	WEIS				0534	1655	1				IIIN
			CULG				0656	0719	1				IIIN
			WEIS				0852.2	0852.4	2				IIIG
			WEIS				0855.8	0856.4	2				IIIG
			WEIS				0924.0	0928.4	3				IIIGG
			WEIS				1211.0	1212.0	2				IIIG
	1304	2325	HARV				1304	2325	1				IN
			HARV				1419	2321	1				IIIN
			HARV				1910	1911	2				IIIG
			HARV	1933	2300	1							IN
			HARV	1947	1950	2							IIIG
			HARV				2034	2035	2				IIIG
	2040	2400	CULG				2040	2400					IIIS,W
			CULG				2040	2240					IS,W
			CULG				2041	2341	1				IIIN
			CULG				2103	2400	1				DC,N
			CULG				2129	2129.5	3				IIIG
			HARV				2129	2130	3				IIIG
			CULG				2240	2400	1				IS
			CULG				2245	2246	3				IIIB,V

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
13			HARV				2246		3				IIIG
			CULG				2350	0728	1				DC,N
14	0000	0728	CULG				0000	0055	1				IS,DC
			CULG				0023	0023.5	1	0023	0023.5	2	IIIG
			CULG				0032	0728					IIIN,W
			CULG				0036	0038	2	0037	0038	1	IIIGG
			CULG				0040	0715	1				IIIN
	0530	0918	WEIS				0554	1637	2				IIIN
			CULG				0601	0603.5	2				IIIG,V
	0922	1705	WEIS				0601.4	0602.5	2				IIIG
			WEIS				0714.4	0714.7	2				IIIG
	1304	2245	HARV				1304	1336	1				IN
			HARV				1314		3				IIIG
			HARV				1336	1458	2				I
			HARV	1343	2245	1							IN
			HARV				1402	1403	2				IIIG
			HARV				1425	2232	2				IIIN
			HARV				1458	1825	1				IN
			HARV				1623		3				IIIG
			WEIS				1623.3	1623.5	3				IIIG
			HARV				1933	1934	2				IIIG
	2028	2400	CULG				2057	2240					IIIN,W
			CULG	2136	2137	1							DCIM
			HARV	2136	2137	2	2136	2137	2				IIIG
			CULG				2139.5	2153	1				IIIRN
			HARV				2140		2				IIIG
			CULG	2255	2300	1			3				
			CULG				2327	2327.5	2	2327	2327.8	1	IIIG
15	0000	0720	CULG	0038	0040								CONT,W
			CULG				0040	0720					IIIN,W
			CULG	0046	0053	1							DCIM
			CULG				0116	0225					IS,W,DC
			CULG				0225	0555	1				IS,DC
			CULG				0227	0632	1				IIIN
			CULG	0404	0720	1							IS
			CULG				0412.5	0413.5	2	0412.5	0413	1	IIIB,V
	0531	1703	WEIS				0536	1340	1				I
			CULG				0555	0720					IS,W
			WEIS				0632.1	0632.4	2				IIIG
			WEIS				1048.6	1048.9	2				IIIG
			WEIS				1146.6	1146.9	3				IIIG
			WEIS				1159.4	1200.0	1				IIIG
			WEIS				1238.4	1238.6	2				IIIG
			WEIS				1248.4	1249.9	3				IIIGG
			WEIS				1251.2	1253.7	3				IIIG
	1304	2311	HARV				1304	2150	1				IN
			HARV				1345	2302	2				IIIN
			HARV				1600	1604	3				IIIG
			WEIS				1600.7	1603.7	3				IIIG
			WEIS				1651.8	1652.3	3				IIIG
			HARV				1652		3				IIIG
			HARV				1820	1822	3	1820	2	2	IIIGG
			HARV	1830	2311	1							IN
			HARV	1905	1909	2	1905	1911	2				IIIG,V
			HARV				1913	1933	3			II	
			HARV				1914	1918	2				IIIGG
			HARV				1924	1926	2				IIIG
			HARV				1933	1937	3	1934	1937	2	IIIGG,V
			HARV				2021	2024	2				IIIGG
	2030	2400	CULG				2041	2348.5					IIIN,W
			CULG				2046.5	2344.5	1				IIIN
			HARV				2057	2058	2				IIIG
			HARV	2113	2115	2	2115	2116	2				IIIG
			HARV	2114	2120	2						IV	
			CULG	2114	2118.5	1							DCIM,N
			CULG	2114.5	2119	1							CONT
			CULG				2115.5	2134	1	2116	2125	1	SWF
			HARV				2117	2126	2			II	

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
15			CULG				2120	2126	1				II
			CULG	2134	2149								IS,W
16			WEIS					1656	1				IN
	0000	0722	CULG				0000	0353.5	1				IIIG,N
			CULG				0010.5	0709.5					IIIN,W
			CULG	0208.5		1	0208.5	0209	1				IIIG
	0533	0555	WEIS										
			CULG				0537.5	0538	1	0537.5	0538	1	IIIG
	0607	0738	WEIS										
	0817	1701	WEIS				0950.8	0951.2	2				IIIG
			WEIS				1112.4	1114.5	2				IIIG
			WEIS				1140.4	1140.7	1				IIIB
			WEIS				1213.9	1214.3	2				IIIG
			WEIS				1243.0	1243.4	2				IIIG
			WEIS				1254.0	1254.1	1				IIIB
			WEIS				1255.2	1255.4	1				IIIB
			WEIS				1255.2	1255.4	1				IIIB
	1304	2305	HARV				1305	1649	1				IN
			WEIS				1327.2	1327.4	1				IIIB
			HARV	1332	1820	1							IN
			HARV				1415	2200	2				IIIN
			WEIS				1420.4	1420.6	1				IIIB
			WEIS				1445.1	1445.4	2				IIIB
			WEIS				1452.5	1453.5	2				IIIB
			HARV				1456	1457	2				IIIG
			WEIS				1456.1	1456.9	1				IIIG
			WEIS				1505.1	1505.4	2				IIIB
			WEIS				1519.1	1519.2	1				IIIB
			HARV				1536		3				IIIG,V
			WEIS				1536.2	1536.7	3				IIIB
			WEIS				1545.4	1545.8	2				IIIB
			HARV				1557	1559	2				IIIG
			WEIS				1557.3	1559.2	3				IIIG
			WEIS				1621.5	1621.8	1				IIIB
			WEIS				1626.0	1626.2	1				IIIG
			HARV				1649	1820	3				IC
			HARV				1919	1920	2				IIIG
	2030	2400	CULG	2049.5	2050	1	2049.5	2051	2				IIIG
			HARV	2050		1	2050	2051	3				IIIG
			CULG				2053	2321.5					IIIN,W
			CULG				2108	2108.5	1				IIIB
			CULG				2243.5	2244	1				IIIB,V
			CULG				2307.5	2308	2				IIIG
17	0000	0726	CULG				0002	0709.5					IIIN,W
			CULG				0005.3		1				IIIB
			CULG				0007		1				IIIB
			CULG				0159	0456.5					IS,W
			CULG				0229.5	0425	1				IN
			CULG				0310	0326	2				II
			LEAR				0311.9	0325.8	1				II
			CULG				0322	0322.5	1				IIIG
			CULG				0329.5	0331.5	1				UNCLF
			LEAR				0407.8	0408.3	1				CONT
			CULG				0408	0408.5	1				IIIG,V
			CULG				0447	0447.5	1				IIIG
			LEAR				0447.0	0447.6	1				CONT
			CULG	0552	0648.5								IN,W
			CULG				0636	0714					IS,W
			LEAR				0638.3	0713.9	1				S
			CULG				0644	0650	1				IIIGG,V
			CULG				0713.5	0714	1				IIIB,Z
			WEIS				0713.7	0714.0	2				IIIG
			LEAR				0740.1	0740.6	1				CONT
			WEIS				0740.4	0741.3	1				IIIG
			WEIS				0838.3	0838.4	1				IIIG
			WEIS				0901.2	0901.3	1				IIIB
			WEIS				0932.4	0932.8	1				U
			WEIS				1017.3	1019.6	3				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
17			WEIS				1135.5	1137.3	3				IIIG
			SGMR				1142.2	1143.2	1				CONT
			WEIS				1142.3	1144.8	3				IIIGG
			WEIS				1204.8	1205.3	3				IIIG
			WEIS				1238.2	1238.4	1				IIIB
			WEIS				1257.8	1258.3	1				IIIG
	1304	2245	HARV				1351	2138	1				IN
	1419	1501	WEIS										
			HARV	1442		2							IIIG
	1504	1701	WEIS										
			HARV	1639	1641	1							IIIGW
			HARV	1645	1646	2							IIIG
			HARV				1700	1904	2				IIIN
			HARV				1810	1811	2				IIIG
			HARV				1814	1819	3				IIIGG
			HARV	2011		2							IIIG
			HARV	2017		2							IIIG
			HARV	2102	2105	1	2102	2105	3				IIIGG
			PALE				2102.5	2105.2	2				CONT
	2030	2400	CULG				2102.5	2103	2				IIIB,V
			CULG				2103	2355.5					IIIN,W
			CULG				2103.5	2354.5	1				IIIN
			HARV	2201	2202	2							IIIG
			HARV	2208	2217	1	2208	2217	3				IIIG
			CULG				2208.5	2209	2				IIIG
			PALE				2247.9	2248.0	2				V
			PALE				2307.9	0007.9	1				S
			PALE				2354.1	2357.8	3				V
			LEAR				2354.1	2357.6	2				CONT
			CULG	2355.5	2356	1	2355.5	2358	3	2356	2357	1	IIIGG,V
18	0000	0725	CULG				0011.5	0546.5	1				IIIN
			LEAR				0011.7	0013.7	1				CONT
			PALE				0013.0	0013.8	1				III
			CULG				0022	0556.5					IIIN,W
			PALE				0037.5	0037.8	1				V
			LEAR				0037.5	0037.8	2				CONT
			CULG	0132.5	0133	1							DCIM
			CULG	0148.5	0152	1							DCIM,N
			LEAR				0301.6	0303.7	1				CONT
			CULG	0519	0521.5	1							DCIM,N
	0505	1700	WEIS				0819.5	0819.7	1				IIIB
			WEIS				0957.8	0958.1	2				IIIG
			WEIS				1218.8	1219.0	1				IIIB
	1316	2240	HARV	1320	2240	1							IN
			WEIS				1327.8	1328.0	1				IIIB
			SGMR				1331.4	1331.5	1				III
			HARV				1332	2240	2				IIIN
			SGMR				1332.4	1332.5	1				III
			WEIS				1332.6	1333.1	2				IIIG
			WEIS				1334.7	1334.8	1				IIIB
			WEIS				1341.4	1341.9	1				IIIG
			WEIS				1344.3	1344.6	1				IIIG
			WEIS				1346.7	1347.7	1				IIIG
			WEIS				1354.4	1354.6	1				IIIB
			WEIS				1356.2	1356.3	1				IIIB
			WEIS				1409.2	1409.7	2				IIIG
			WEIS				1424.2	1424.6	2				IIIG
			WEIS				1433.5	1433.8	1				IIIB
			WEIS				1449.7	1449.8	1				IIIB
			WEIS				1451.7	1451.8	1				IIIB
			WEIS				1455.3	1455.6	1				IIIG
			HARV				1503	2142	1				IN
			WEIS				1506.9	1513.8	3				IIIG
			HARV				1507	1516	3				IIIGG
			SGMR				1508.2	1510.8	2				CONT
			HARV	1519	1535	2							I,IIIGG
			WEIS				1540.6	1548.0	3				IIIGG
			HARV				1541	1548	3				IIIGG
			SGMR				1541.7	1546.5	2				CONT

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
18			WEIS				1615.7	1617.0	2				IIIG
			HARV				1616	1617	3				IIIG
			SGMR				1616.5	1640.2	1				CONT
			WEIS				1629.0	1629.7	2				IIIG
			HARV				1634	1644	3				IIIGG
			WEIS				1634.4	1644.0	2				IIIGG
			HARV				1702	1703	3				IIIG
			SGMR				1702.7	1703.0	1				V
			HARV				1742		2				IIIG
			PALE				1742.2	1742.5	1				III
			PALE				1748.5	1755.9	2				CONT
			SGMR				1748.5	1755.8	2				CONT
			HARV	1751		1	1749	1758	3	1751	1752	2	IIIGG
			HARV	1808	1809	2	1807	1809	3				IIIGG
			SGMR				1808.4	1808.7	2				V
			PALE				1808.5	1808.8	2				III
			HARV				1812	1813	3				IIIG
			PALE				1836.1	1844.2	3				CONT
			SGMR				1836.1	1837.2	1				CONT
			HARV	1840	1841	2	1836	1849	3	1841		2	IIIGG
			SGMR				1840.9	1844.2	2				CONT
			HARV				1914		3				IIIG
			PALE				1926.5	1926.9	1				CONT
			HARV				1927	1930	3				IIIGG
			PALE				1932.9	1940.9	2				CONT
			HARV				1933	1946	3				IIIGG
			PALE				2008.4	2008.7	2				III
	2027	2400	CULG				2028		2				IIIB
			HARV				2028		3				IIIG
			PALE				2028.0	2028.2	2				V
			CULG				2028.5	2317.5	1				IIIN
			CULG				2037	2341					IIIN,W
			HARV				2039	2040	3				IIIG
			CULG				2046		1				RS
			CULG	2059	2341	1							IN
			HARV				2100		3				IIIG
			CULG				2100.5	2101	2				IIIG,V
			CULG	2110.5	2118	1	2110.5	2118	1				IIIGG
			PALE				2110.5	2117.6	2				CONT
			HARV	2111	2117	2	2110	2117	3				IIIGG
			CULG				2111	2111.5	2				IIIG
			HARV	2140	2145	1	2140	2148	3				IIIGG
			PALE				2140.2	2148.0	3				V
			CULG	2140.5	2145.5	1	2140	2148	2	2141	2145	1	IIIGG,N
			LEAR				2240.8	2315.1	1				S
			PALE				2306.4	2319.5	2				S
			CULG	2317.5	2318	1	2317.5	2319.5	2				IIIG,V,U
			LEAR				2317.7	2319.0	2				CONT
			LEAR				2352.5	2355.1	2				CONT
			CULG	2353	2355	1	2352.5	2356	2	2353.5	2355	2	IIIGG
			LEAR				2354.1	2357.6	2				CONT
			PALE				2354.1	2357.8	3				V
19	0000	0721	CULG	0014.5	0015.5	1	0014.5	0016	1				IIIG,V
			LEAR				0014.6	0015.9	1				CONT
			PALE				0014.6	0016.1	2				V
			CULG				0033.5	0723					IIIN,W
			LEAR				0052.7	0057.5	1				CONT
			CULG				0136		1				DP
			LEAR				0215.6	0219.2	1				CONT
			CULG				0218.5	0219	1				IIIG
			CULG				0244.5	0246.5	1				IIIG
			LEAR				0244.9	0246.7	1				V
			CULG	0313	0316.5								I,W
			CULG				0320.5	0328				II	W
			CULG				0328	0344	2			II	
			LEAR				0328.5	0342.9	2			IV	
			CULG				0411		1				RSDP
			CULG				0421.5	0422.5	1				IIIB,V
			LEAR				0421.8	0422.2	1				CONT

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
19			CULG				0439		1				RSDP
			LEAR				0451.9	0453.6	2				V
			CULG				0452	0453.5	2	0452	0453	2	IIIG,V
			LEAR				0519.9	0520.9	2				CONT
			CULG				0520	0521	2	0520	0520.5	1	IIIG
	0536	1212	WEIS				0545	1555	2				IIIN,DP
			CULG	0551	0555	1							DC
	1546	1658	WEIS				0551	0604	1				I
			CULG							0552	0557	1	SWF
			CULG	0603	0603.5	1							DCIM
			LEAR				0701.1	0702.1	2				CONT
			WEIS				0701.2	0704.6	3				IIIG
			CULG				0701.5	0702	1				IIIG
			CULG				0704		1				RSDP
			LEAR				0811.6	0812.0	1				CONT
			WEIS				0811.8	0812.2	3				IIIG
			LEAR				0824.2	0827.3	1				CONT
			WEIS				1052.2	1052.4	3				IIIB
			WEIS				1127.7	1127.9	3				IIIB
	1316	2317	HARV				1316	2317	2				IIIN
			HARV				1343	2303	1				IN
			HARV				1344	1345	2				IIIG
			HARV	1439	2258	2							IIIN
			HARV	1447	2320	1							IN
			HARV	1510	1511	1	1510	1511	2				IIIG
			SGMR				1510.7	1511.2	1				CONT
			HARV	1646	1651	2							IIIG
			HARV	1839	1840	2							IIIGG
	2026	2400	CULG				2026	2125					IIIS,W
			CULG				2026.5	2357	1				IIIN
			CULG				2032.5	2350.5	1				RSDP,N
			CULG				2125	2348.5					IIIN,W
			CULG	2247.5	2307.5								IS,W
			HARV	2248	2249	2	2248	2249	1				IIIG
			CULG				2312	2312.5	2				IIIB
			LEAR				2312.2	2317.1	1				CONT
			PALE				2312.3	2317.1	2				CONT
			CULG				2316.5	2317	2				IIIG,V
			LEAR				2356.8	2357.5	1				CONT
20	0000	0725	CULG				0008	0711.5					IIIN,W
			CULG				0018	0722	1				RSDP,N
			CULG				0103	0708	1				IIIN
			LEAR				0103.2	0104.3	1				CONT
			LEAR				0140.5	0140.9	1				CONT
			LEAR				0342.0	0342.5	1				CONT
	0538	1425	WEIS				0539	1554	2				IIIN,DP
			LEAR				0607.3	0608.4	1				CONT
	1427	1655	WEIS				0607.5	0609.7	3				IIIG
			CULG	0622.5	0633.5								DCIM,N,W
			WEIS				0630.7	0631.6	3				IIIG
			LEAR				0630.8	0704.4	1				S
			WEIS				0635.6	0636.4	2				IIIG
			LEAR				0803.6	0805.3	1				CONT
			WEIS				1116.1	1117.9	2				IIIG
	1316	2315	HARV	1316	2209	1							INW
			HARV	1500	2057	2							IIIN
			HARV				1515	1741	1				INW
			HARV	1910		1	1910		3	1910		2	IIIG
			PALE				1910.0	1910.4	2				III
			HARV				1959	2000	2				IIIG
	2030	2400	CULG	2048.5		1							DCIM
			CULG				2054.5		1				IIIB,V
			CULG				2055	2055.5	1				RSDP
			CULG				2308	2350	1				RSDP,N
			CULG				2324	2358					III,W
21	0000	0725	CULG	0036.5	0200								IS,W
			CULG				0054	0628.5					IIIN,W
			CULG				0125.5		1				RSDP

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECINETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
21			CULG	0355	0356.5	1							DCIM
			CULG				0404.5	0722	1				RSDP,N
			CULG				0525.5	0617	1				IN,DC
	0609	1314	WEIS				0615	1432	1				IIIN
			CULG				0628.5	0716.5					IIIS,W
			LEAR				0640.0	1003.0	1				B
	1318	1652	WEIS										
	1316	2245	HARV				1421	2245	1				INW
			HARV				1431	2205	1				IIINW
			HARV	1450	1756	2							IIIN
			HARV	1503	2152	1							INW
			HARV	1755	1756	2	1755	1756	2				IIIG
	2026	2400	CULG				2157	2336					IIIN,W
22	0000	0725	CULG				0149	0522.5					IIIN,W
			CULG				0156						DP,W
			CULG				0212.5	0603	1				IIIN
			CULG	0322	0322.5	1							DCIM
			CULG				0445						DP,W
			LEAR				0602.8	0603.2	1				CONT
	0542	1648	WEIS				0603.0	0603.3	2				IIIB
			CULG				0604.5		1				DP
			CULG				0635	0636.5	1				IIIGG
			LEAR				0635.0	0636.8	1				CONT
			WEIS				0635.0	0636.7	3				IIIGG
			WEIS				0837.6	0901.8	3				IIIGG
			LEAR				0838.0	0848.9	2				S
			LEAR				0849.1	0903.9	1			II	
			WEIS				0927.5	0928.2	2				IIIG
			WEIS				1013.3	1013.7	2				IIIB
			WEIS				1017.8	1017.9	2				IIIB
			WEIS				1221.6	1222.3	1				IIIG
	1316	2300	HARV				1541		1				IIIG
			HARV				1608		3				IIIG
			WEIS				1608.2	1608.4	2				IIIB
			HARV				1636	1637	1				I
			HARV				1655	1656	3				IIIG
			HARV				1703	1705	1				IIIG
			PALE				1745.1	1804.0	1				S
			HARV				1754	1757	3				IIIGG
			HARV				1802	1804	3				IIIGG
			HARV				1816		2				IIIB
			HARV				1857	1858	2				IIIG
			HARV				1952		1				IIIGW
			PALE				2020.8	2032.9	1				S
			HARV				2021		2				IIIG
			HARV				2029		2				IIIG
			HARV	2032	2033	1	2032	2033	3				IIIG,U
			CULG				2032.5	2033	2				IIIV,U
			HARV				2115	2121	3				IIIG
			CULG				2117	2117.5					IIIG,W
			CULG				2117.5	2121				II	W
			CULG				2120	2121	1				IIIG
			CULG				2137.5	2138	2				IIIG,V
			PALE				2137.8	2138.0	2				V
			PALE				2140.9	2141.2	2				V
			PALE				2142.9	2143.0	1				V
			HARV	2143		1	2137	2143	3				IIIGG
			HARV				2204		1				IIIB
			HARV				2244	2245	2				IIIG
			CULG	2304.5	2305								IIIG,W
			LEAR				2304.7	2310.2	1				CONT
23			CULG										
			LEAR				0011.1	0011.8	1				CONT
	0000	0725	CULG				0011.5	0012					IIIG,W
			CULG				0356.5						UNCLF,W
			CULG				0459	0459.5					IIIG,W
			LEAR				0459.1	0459.6	1				CONT
	0542	1029	WEIS										

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
23	1048	1647	WEIS										
	1316	2255	HARV	1437	1438	2							IIIG
			HARV				1758		1				IIIGW
			HARV				1803	1804	3				I
	2026	2400	CULG				2104						IIIG,W
			CULG	2355.5		1	2355.5	2356	2				IIIB
			LEAR				2355.5	2356.0	2				CONT
			PALE				2355.8	2356.0	2				V
			CULG				2358		1				IIIB
24	0000	0724	CULG				0107	0108.5	1				IIIG,V
			CULG				0150.5						IIIB,W
			LEAR				0216.7	0217.1	1				CONT
			CULG				0217		1				UNCLF
			CULG				0530.5	0533	1			II	
			CULG				0545.5						IIIB,U,W
			LEAR				0653.6	0653.9	1				CONT
	0545	1645	WEIS				0653.7	0653.9	1				IIIB
			CULG				0654		1				IIIB
			LEAR				0713.9	0714.9	1				CONT
			WEIS				0713.9	0714.7	1				IIIG
			CULG				0714	0715	1				IIIG
			WEIS				1000.3	1000.4	3				U
	1316	2255	HARV				1519	1520	2				IIIG
			WEIS				1519.0	1520.4	1				IIIG
			HARV				1715		1				IIIBW
			LEAR				2355.5	2356.0	2				CONT
	2025	2400	CULG				2400						IIIB,W
25	0000	0725	CULG				0309.5	0310					IIIG,W
			CULG				0438	0438.5	1				IIIB
			LEAR				0438.0	0438.3	1				CONT
			LEAR				0753.1	0755.2	2				CONT
	0546	0845	WEIS				0753.3	0755.1	2				IIIG
	0850	1643	WEIS				1313.1	1313.9	1				IIIG
	1316	2305	HARV				1442		1				IIIBW
			HARV				1712	1713	1				IIIBW
			HARV	1751		1							I
			HARV				1856		2				IIIG
	2030	2400	CULG										
26	0000	0723	CULG				0142						IIIB,W
			CULG				0259	0259.5	1				IIIG
			CULG	0547	0554								CONT,W
			CULG	0600.5		1							UNCLF
			CULG	0607.5	0629.5								DCIM,N,W
			LEAR				0806.6	0807.9	1				CONT
	0547	1640	WEIS				1036.9	1038.2	2				IIIG
			WEIS				1304.3	1307.7	2				IIIG
			WEIS				1312.2	1340.0	3			II	HARM
			SGMR				1318.3	1336.0	1			II	
	1316	2250	HARV				1319	1321	1				I
			HARV				1323	1329	2			II	
			WEIS				1354.6	1354.9	1				IIIG
			HARV				1355		1				IIIG
			HARV				1436	1437	2				IIIG
			WEIS				1436.4	1436.8	1				IIIG
			HARV	1554		1	1554		1				IIIBW
			HARV	1710	1711	1	1709	1711	2				IIIGG
			HARV				1814		1				IIIBW
			HARV	1934		1	1934		3				IIIG
	2025	2400	CULG				2044						IIIB,W
			HARV	2127		1	2127		2				IIIG
			CULG	2131	2132.5	1	2131	2132.5	2				IIIG,V
			PALE				2131.2	2132.2	2				V
			HARV	2132		1	2131	2132	3				IIIGG,V
			HARV	2221	2224	1	2221	2224	1				IIIGW
			CULG	2221	2332.5		2223	2358					IIIN,W
			HARV	2232		1	2232		1				IIIG
			HARV	2235	2236	1							IIIGW

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
26			CULG	2258.5	2259	2							DCIM
27	0000	0723	CULG				0022.5	0023	1				IIIG
			LEAR				0022.5	0023.1	1				CONT
			CULG				0023	0604					IIIN,W
			CULG	0047	0052	1							DCIM,N
			CULG				0154	0155	1				DC
			CULG	0221									DCIM,W
			CULG				0427.5	0428.5	1				IIIG
			CULG				0533		1				IIIB,Z
			CULG				0537	0538	2				IIIGG
			LEAR				0537.8	0539.9	2				CONT
	0548	0636	WEIS										
			WEIS				0912.1	0912.7	1				IIIG
	0752	1639	WEIS				1251.7	1251.9	1				IIIB
			WEIS				1318.7	1318.9	1				IIIB
	1316	2325	HARV				1352	2319	2				IIIN
			HARV				1556	1557	2				IIIG
			HARV				1650		2				IIIG
			HARV				1657	1658	2				IIIB
			HARV				1700	1703	2				IIIGG
			HARV				1708	1709	2				IIIG
			HARV				1903		2				IIIG
	2025	2400	CULG				2114.5	2358					IIIN,W
			HARV				2115		2				IIIG
			HARV				2141	2144	2				IIIGG
			HARV				2228	2230	2				IIIG
			HARV				2245		2				IIIG
			PALE				2245.7	2246.3	1				III
			HARV				2251	2253	2				IIIG
			HARV				2303	2304	3				IIIG
			HARV	2315	2316	1	2315	2316	3				IIIG
			CULG	2315.5		1	2315.5		1				IIIB
			CULG	2326	2326.5								IIIG,W
			LEAR				2357.8	2359.5	1				CONT
28	0000	0720	CULG				0008.5	0009.5	1				IIIG
			LEAR				0008.6	0009.5	1				CONT
			LEAR				0111.3	0112.1	1				CONT
			CULG				0111.5	0112	1				IIIG,U
			CULG				0157.5	0305					IIIN,W
			CULG	0200	0201								DCIM,W
			CULG	0248.5	0249								IIIG,W
			CULG	0422.5	0423								DCIM,W
			CULG				0505	0506	1				V
			CULG				0653						IIIB,W
	0549	1636	WEIS				0843.9	0844.1	1				IIIB
			WEIS				1050.2	1050.3	1				IIIB
	1316	2300	HARV	1358		1							IIIGW
			HARV	1438	2249	1							INW
			HARV				1504	2300	1				INW
	2025	2400	CULG				2025	2028.5	1				DC
			CULG				2031.5	2059.5					IIIN,W
			HARV				2034	2041	1				IIIGGW
			CULG				2222	2324					IN,W
			CULG				2318.5	2323					IIIN,W
			LEAR				2357.8	2359.5	1				CONT
			PALE				2359.3	0009.3	1				CONT
29	0000	0723	CULG				0048.5	0707.5					IIIN,W
			CULG				0408		1				RSDP
			LEAR				0454.4	0455.3	1				CONT
			CULG				0454.5	0453	1				V
			CULG				0516.5		1				IIIB
	0552	0638	WEIS										
			CULG				0706.5		1				RSDP
			CULG				0712.5		1				
			LEAR				0808.4	0810.7	1				CONT
	0645	1635	WEIS				0808.4	0810.1	1				IIIG
	1316	1804	HARV				1320	1644	1				INW

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
29			HARV	1328	1559	1							INW
			HARV	1444	1445	2	1443	1447	3				IIIGG
			WEIS				1444.3	1447.2	2				IIIGG
			WEIS				1451.8	1502.2	1			II	RSHARM
			HARV				1456	1459	2				IIIGG
			HARV	1520		1	1520		2				IIIG
			HARV				1533	1534	3				IIIGG
			SGMR				1533.0	1534.0	1				CONT
			WEIS				1533.1	1534.2	3				IIIG
			HARV				1539		1				IIIGW
			HARV				1705		1				IIIGW
	2023	2400	CULG				2024	2048					IIIS,W
			CULG				2024.5	2400	1				IS,DC
			CULG				2048						IIIN
			CULG				2147	2147.5	1				
			PALE				2147.1	2147.3	1				III
			CULG				2356.5	2358					V
			LEAR				2356.8	2358.1	1				CONT
			HARV			1	452	1455	2			II	
30	0000	0713	CULG				0000	0037	1				IS
			CULG				0005.5	0713					IIIN,W
			CULG				0037	0635					IN,W
			CULG				0052.5	0054				II	W
			LEAR				0052.6	0054.0	1			II	
			LEAR				0054.0	0516.3	1				B
			CULG				0255	0710	1				IIIN
			CULG	0708.5		1	0708.5		1				IIIG,U
			LEAR				0810.7	0815.1	1				CONT
	0553	1513	WEIS				0942.9	0943.0	1				IIIB
			WEIS				1140.7	1140.9	1				IIIB
	1316	2245	HARV				1335	2129	1				INW
			HARV	1405	2238	1							INW
			HARV				1455	1456	1				IIIG
	1618	1633	WEIS										
			HARV	1757	1758	3							IIIG
			HARV	1846	1847	3	1846	1847	2				IIIG
			HARV	1855	1856	2	1855	1856	2				IIIG
			HARV	1905		1	1904	1905	2				IIIG
			HARV	2000	2002	2	2001	2002	2				IIIG
			HARV				2007	2009	2				IIIGG
			HARV				2014		2				IIIB
	2025	2400	CULG				2057	2400					IIIN,W
			CULG				2107	2249	1				IIIN
			HARV				2107		2				IIIB
			HARV				2129	2138	2				I,DC
			CULG				2132.5	2157					IS,W
			HARV				2138	2155	1				INW
			PALE				2152.5	2210.5	1				S
			HARV				2155	2245	2				I
			HARV				2156	2157	2				IIIG
			CULG				2157	2400	1				IS
			CULG				2213	2252.5	1				DC,N
			HARV	2214		3							IIIG
			PALE				2238.5	2244.5	1				CONT
			LEAR				2238.8	2314.3	1				S
			HARV				2245		3				IIIB
			CULG	2258	2315	1	2258.5	2325	1				CONT
			LEAR				2314.3	0210.5	1				B
			PALE				2350.3	2350.9	2				III
			CULG				2350.5	2351	2	2350.5	2351	1	IIIG,V

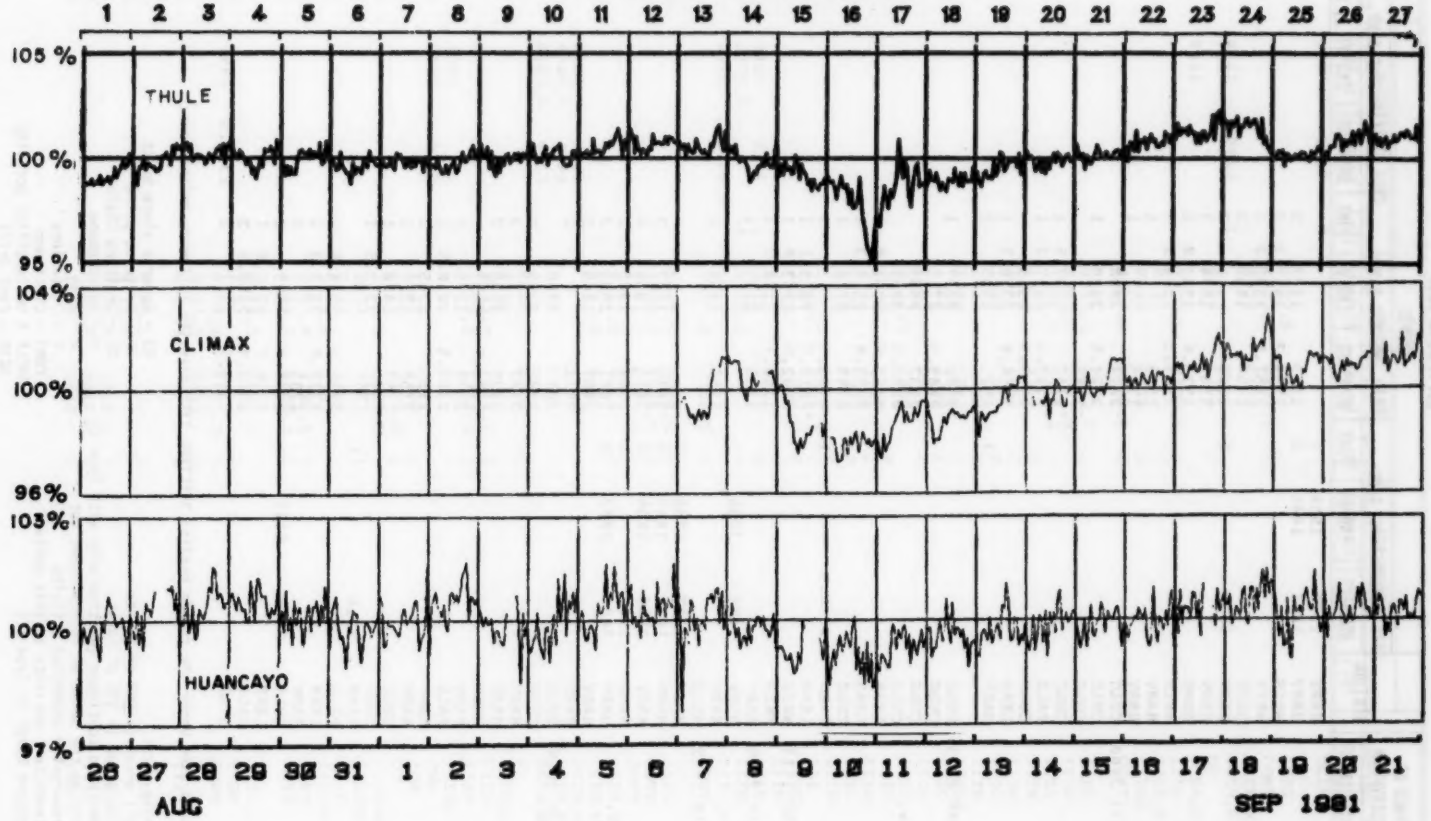
The symbols used under the column heading SPECTRAL TYPE have the following definitions:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with Type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2024



COSMIC RAY INDICES

(Neutron Monitors)

SEPTEMBER 1981

Sept 1981	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/100	HUANCAYO Average (cts/h)/100
1	4101	6660.4	6234.8	5685.8	---	3537.5	1731.2
2	4102	6666.0	6245.1(22)	5718.3	---	3553.0	1741.2
3	4111	6662.2	6254.2	5709.0	---	3547.2	1728.4
4	4116	6689.9	6242.7	5710.0	---	3538.8	1730.3
5	4133	6712.2	6296.6	5746.0	---	3565.0	1737.2
6	4140	6709.7	6299.2	5749.5	---	3564.8	1736.9
7	4136	6711.8	6295.0	5747.2	3664.6	3551.5	1733.0
8	4105	6654.3	6290.8	5711.8	3695.5	3536.8	1726.8
9	4078	6615.3	6223.8	5632.5	3629.3	3517.4	1716.5(36)
10	4020	6561.8	6158.3	5621.1	3600.2	3510.9	1714.3
11	4056	6576.4	6182.8	5640.5	3629.2	3526.2	1718.7
12	4068	6598.9	6218.0	5670.8	3634.9	3530.8	1724.0
13	4092	6618.0	6246.0	5710.5	3658.5	3542.1	1726.9
14	4106	6642.0	6265.3	5717.1	3665.1	3545.0	1729.4
15	4118	6663.0	6300.7	5730.6	3685.9	3553.8	1729.3
16	4142	6713.0	6318.8	5745.1	3688.5	3559.0	1730.4
17	4167	6744.7	6369.6	5769.8	3712.8	3566.6	1737.5
18	4170	6759.7	6388.6	5789.7	3732.5	3569.1	1741.8
19	4118	6686.1	6307.8	5745.7	3704.2	3558.2	1733.7
20	4145	6713.7	6339.4	5763.3	3710.8	3556.5	1736.3
21	4152	6715.8	6351.5	5745.6	3721.3	3565.0	1736.6
22	4150	6740.7	6362.9	5760.0	3734.4	3575.4	1742.5
23	4174	6764.6	6391.3	5788.5	3753.2	3577.4	1741.6
24	4137	6702.0	6359.1	5764.5	3725.1	3551.6	1735.2(38)
25	4106	6666.5	6273.8	5719.1	3685.6	3531.5	1725.5
26	4079	6614.7	6230.8	5655.7	3689.6	3537.1	1715.6
27	4079	6627.6	6228.4	5669.0	3670.5(38)	3533.4	1720.1
28	4129	6721.7	6292.3	5712.5	3699.4	3546.2	1721.7
29	4147	6721.1	6333.7	5714.0	3722.0	3549.1	1721.1
30	4101	6649.4	6263.5	5675.6	3677.0	3519.4	1711.7
MEAN	4116	6676.1	6285.5	5717.3	3687.8	3547.2	1729.2

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

GEOMAGNETIC ACTIVITY INDICES

SEPTEMBER 1981

Day	Three-Hourly Indices Kp									Ap	Cp	Three-Hourly Indices Km								Am	aa			
		1	2	3	4	5	6	7	8	Sum			1	2	3	4	5	6	7	8		N	S	M
1	Q3	0+	1-	1	1	2-	2-	2-	2-	10-	5	0.2	0+	1-	1-	1	1+	1+	1+	2-	7	8	8	6 10 CK
2	D5*	2+	3	4	3	3+	4+	3	3-	26-	18	1.0	2	3-	3+	4-	3	3+	3-	3-	30	25	29	23 31
3		2+	2	2+	3	2+	2+	1	2	17+	9	0.5	2+	2-	2+	2+	2	1+	1	2	15	17	11	17 10
4		2	0	1	2+	3-	2	3	4+	17+	11	0.6	2-	0+	1	2-	3-	2-	2+	4	18	22	17	11 28
5		4+	3+	3+	3+	3-	3-	2	3+	25	17	0.9	4-	3	3	3	3-	3-	2	3-	28	30	24	31 23
6	Q8A	3-	2+	3-	2-	2-	1+	1	2	15+	8	0.4	3-	2	3-	1+	2-	1	1+	2-	14	14	10	13 11 C
7	Q4	1	2-	1-	1+	1	2	2+	1+	11+	5	0.2	1	2	1-	1+	1-	2	2+	2-	10	10	11	9 11 CK
8		1+	4-	2+	1	0+	0+	1	4+	14+	10	0.6	1+	3-	2+	1	0+	0+	1	4-	14	16	16	18 15
9		3+	2+	3	3-	2	2	2+	2+	20	11	0.6	3	2+	3-	2+	2-	2-	2+	2+	18	20	17	22 14
10		2+	2	1+	2+	3	3-	2+	2	18	9	0.5	3-	2	2-	2+	3	3-	2	2+	19	20	18	14 23
11	D4	4	4+	4	4-	4	2-	2+	3+	27+	21	1.1	4-	4-	3+	3+	4-	2-	2	3	33	32	33	38 28
12		2+	3-	2	2	3+	2+	3	2-	19+	10	0.6	2+	3-	2	2+	3	3-	3	2	22	16	31	21 26
13		3	4-	3-	2	3+	3-	1	2	20+	12	0.7	3-	3	2+	2+	3+	3-	1	2	21	22	25	26 21
14		0+	1+	2+	2-	4-	3-	3-	3-	17+	10	0.6	0+	1+	2	2-	3	2+	3-	3-	17	19	18	14 23
15		2-	2-	4-	3-	2	3-	2-	1+	17+	10	0.5	2-	2-	3+	2+	2	3-	2	2-	18	17	17	19 14
16	Q7A	2-	3	2	2-	2-	2-	1+	2-	15-	7	0.4	1+	2	2-	2-	2-	2-	1+	1+	11	16	12	15 12 C
17	Q2	1+	2	0+	1-	1+	1	2-	1-	9	4	0.2	1	1+	0+	1-	1+	1-	1+	1-	6	8	9	8 9 CC
18		1+	0+	1	1-	1	1	5+	6-	16+	18	1.0	1	0+	1	0+	1+	1	5-	5-	23	30	29	10 49
19	D1	5	4	6	4+	5+	3	4+	3+	35+	38	1.4	5-	3+	5	4-	4+	2+	3+	3+	51	50	51	65 37
20	Q0A	3-	2+	2-	2-	2-	2+	3-	2+	17+	9	0.5	3-	2-	2-	1+	2-	1+	3-	3-	16	16	15	14 16
21	Q6A	3-	1	1+	2-	1-	1	2	3	13+	7	0.4	2+	1	1	1+	1-	1-	2-	3-	11	16	11	13 14 C
22		2	4+	4	2	2-	1-	2	3+	20	13	0.8	2	3+	3+	2-	2-	0+	2+	3	20	23	17	23 18
23	Q1	2+	1	0+	1	1	1	0+	1+	8+	4	0.1	2+	1	0	1-	1	1	0+	1+	7	8	7	8 8 CK
24	Q9A	1	2	2	2	2+	2+	2	2+	16	7	0.4	1+	2	2	2+	2+	2+	2+	3-	17	15	22	17 20
25		3	3	3-	2	4-	4-	1+	1+	21-	13	0.7	2	3-	2+	2+	3+	3+	1+	2-	22	22	28	25 25
26	D2	2+	4-	4+	4+	5-	4+	5	5-	33+	32	1.3	2	3	3+	4+	5-	4	4+	4	52	48	50	35 64
27	D3	4-	4+	5-	3+	2+	3-	4	2+	27+	21	1.1	3	3	4	3	2	2	4	2	31	36	27	36 28
28	Q5K	3	2	1	1+	1+	2-	1-	2-	13-	6	0.3	3-	2-	1	1+	1+	2-	1	1+	11	14	9	12 10 C
29		1+	2-	1+	1+	4-	4	4-	3+	20+	14	0.8	1+	1+	1	2-	3	3+	3	3	21	20	31	11 40
30		2+	3	3-	3	3+	3	3+	3	24-	15	0.8	2	3-	2+	3	3+	3-	3	3	26	24	31	26 29
									Mean		12	0.64									20.3	21.1	21.1	21.1

Day	Three-Hourly Indices Kn								An	Three-Hourly Indices Ks								As
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	
1	0+	1-	1	1+	2-	2-	2-	2-	9	0	1-	1-	1	1+	1	1+	2-	6
2	2-	3-	4-	4-	3	3+	3-	3-	31	2	3-	3+	3+	3	3+	3-	3-	29
3	2	2	3-	3-	2+	2	1+	3-	17	2+	2-	2+	2+	2-	1	0+	1+	12
4	2-	0+	1	2-	3	2	3-	4	19	2	0+	1-	2-	2+	1	2+	4	17
5	4	3+	3	3	3	3-	2+	3	30	4-	3	3-	3	2+	2+	2-	3-	26
6	3-	2-	3-	2-	2-	1+	1+	2	15	3	2	3-	1+	1+	0+	1	1+	13
7	1	2-	1-	1+	1-	2	2	1+	10	1	2	1	1	1-	2-	2+	2-	11
8	1	3-	2+	1+	1-	1	1+	4	17	2-	3-	2+	1-	0	0	1-	3+	12
9	3-	2	3-	2+	2	2	2+	3-	19	3	2+	3-	2	2-	1	2	2-	17
10	2+	2-	2-	2+	3+	3	2+	2	20	3-	2+	2-	2	3-	2+	2	2+	19
11	3+	4-	4-	3+	4-	2-	2+	3	33	4	4-	3	3+	4-	2-	2	3	34
12	3-	3	2+	2+	3+	3-	3	2	25	2+	2	2	2	3-	3-	3+	2	20
13	3-	3-	3-	2+	4-	3-	1+	2+	23	3-	3	2+	3-	3-	3-	1	2-	20
14	0+	1+	3-	2-	3+	3-	3-	3-	19	0+	1+	2-	2-	3	2	2+	2+	15
15	2-	1+	4-	3-	2	3-	2	2	20	2	2	3	2+	2	2+	2-	2-	17
16	1+	2	2-	2	2-	2-	2-	2-	12	1+	2-	1+	2-	1+	2-	1+	1+	10
17	1	1+	0+	1-	1+	1-	2-	1-	7	1	2-	0+	1	1+	0+	1	1-	6
18	1	0+	1	0+	1+	1	5-	5-	23	1	0+	1	0+	1+	1-	4+	5-	22
19	4+	3+	5+	4-	5-	2+	4-	3+	56	5-	3+	5-	4-	4-	2	3+	3+	47
20	2+	2-	1+	2-	2-	2-	3-	2+	14	3	2-	2-	1+	2-	1	3-	3-	16
21	2	1-	1	2-	1-	1	2-	3-	11	3-	1	1	1	0+	1-	1+	3	11
22	2-	4-	3+	2	2	0+	2	3	21	2+	3	3+	2-	1+	0	2+	3	20
23	2	1-	0+	1	1	1	0+	1+	7	3-	1	0	0+	1-	1-	0+	1+	7
24	1	2	2+	2	2+	2+	2	3-	16	1+	2+	2	2+	2+	2+	2+	3-	17
25	2	3-	2+	2+	4-	4-	1+	2-	23	2	3-	3-	2+	3	3+	1+	2-	20
26	2	3-	4-	5-	5-	4	5-	4	56	2+	3+	3	4	5-	4	4+	4+	49
27	3	3	4+	3+	2	2+	4	2+	34	3	3+	4-	3-	2	2	4-	2-	29
28	3	2-	1	1+	1+	2-	1	2-	12	2+	2-	1	1+	1+	2-	1+	1+	11
29	1+	2-	1	2	3	3+	3+	3	22	1+	1+	1	1+	3	3	3	3	20
30	2-	3-	2+	3-	3	3-	3-	3	24	2	3-	3-	3	3+	3-	3	3+	28
								Mean	21.5									19.4

ERRATA:

Conversion in 1979 to a new computer with a different word size caused values of indices aa to be truncated if they exceeded 99; the machine read and printed only the two least significant digits. Correct values of the affected indices are listed below. Both half-daily values are given, too, to make clear which of the two entries should be corrected.

Date	N	S	M
21 Feb 1979			66 102
10 Mar			54 101
25 Apr	109		27 148
26 Apr			103 15
13 Aug			53 108
20 Aug			33 100
29 Aug			59 111
18 Sep			100 63
25 Jul 1980			13 100
19 Dec	118	123	63 178
06 Feb 1981			24 116

NOTE:

aa indices are provisional from 1 January 1981 until further notice, in connection with the change of the Southern Hemisphere observatory.

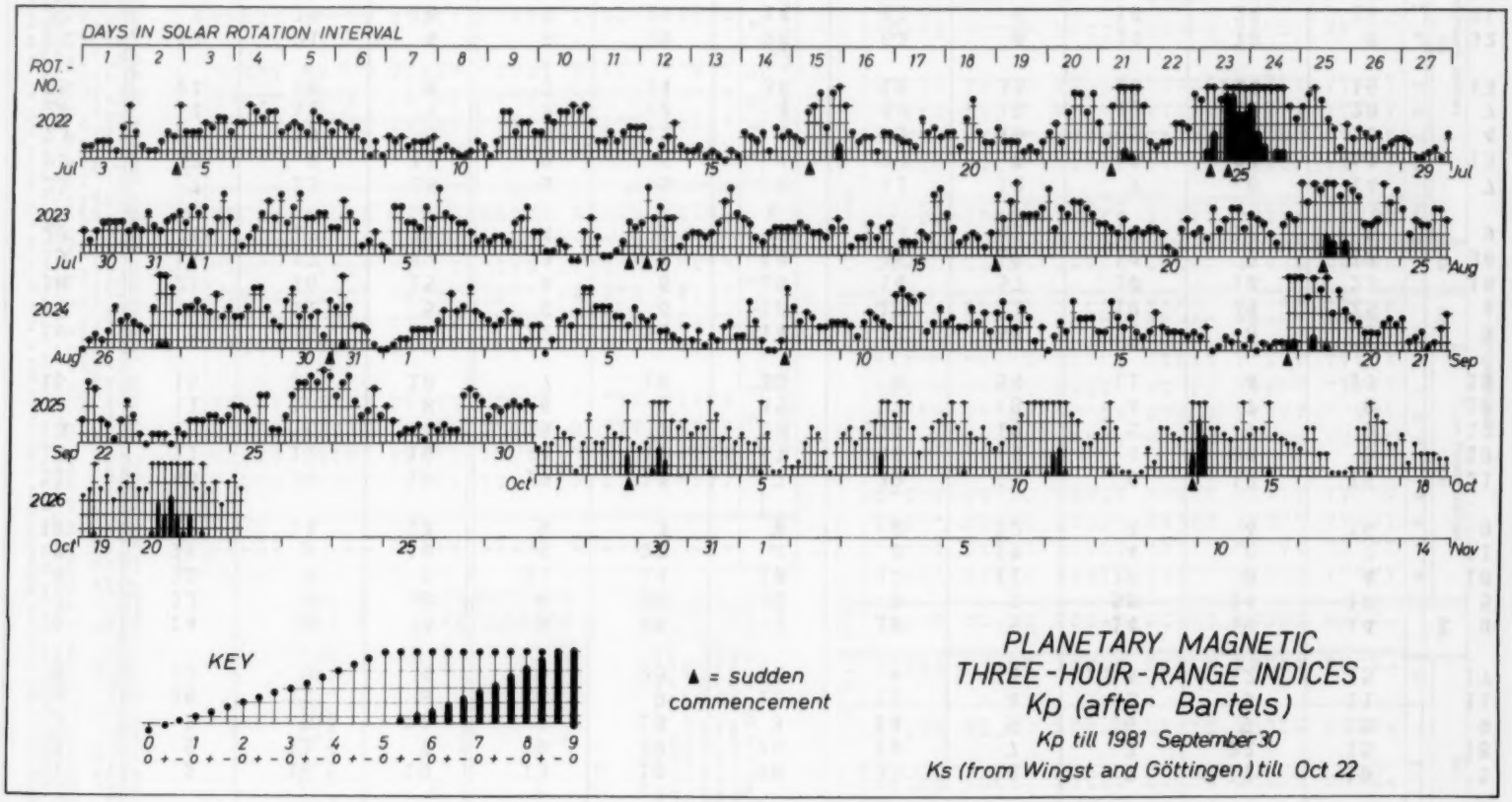
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤6 but one Kp≥30 or two Kp values≥3-"). An asterisk means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices Kn, Kn, Ks, daily mean values Am, An, As (unit 1nT), and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices daily north (N) and south (S) values, and half-daily antipodal mean (M) values are given. Quiet 24-hour and 48-hour intervals centered on 1200 UT are indicated for really quiet as C and for quiet but with some slightly disturbed three-hour intervals as K. The first hundred years series of aa is in IAGA Bulletin No.33, and complementary data are in IAGA Bulletin No.39.

DAILY AVERAGE INDICES Ap

	1980			1981								
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2	16	19	13	14	28	23	16	7	17	18	5
2	5	11	7	9	22	25	10	7	7	22	15	18
3	5	5	21	9	13	8	14	5	16	9	18	9
4	26	12	8	14	9	12	11	4	5	9	11	11
5	22	5	4	9	25	81	4	4	6	12	15	17
6	14	6	4	9	48	11	10	5	14	19	14	8
7	12	6	6	6	20	20	9	5	50	14	10	5
8	12	6	9	11	14	10	11	11	16	8	4	10
9	16	9	10	6	22	4	8	39	4	6	7	11
10	22	14	10	9	3	8	8	32	4	4	16	9
11	40	24	16	19	10	7	39	61	6	13	15	21
12	11	12	16	4	11	11	96	13	4	20	9	10
13	5	6	6	6	7	28	121	10	5	9	9	12
14	11	10	8	6	3	45	27	18	4	7	8	10
15	15	22	10	7	10	19	8	54	11	4	13	10
16	3	16	16	12	10	14	13	59	21	8	8	7
17	5	11	5	8	6	18	19	13	10	29	25	4
18	21	16	15	4	6	19	14	57	10	10	23	18
19	11	17	79	3	6	10	45	18	10	9	10	38
20	4	17	21	4	9	9	53	43	10	12	8	9
21	7	13	26	2	5	8	41	12	7	6	14	7
22	23	8	11	9	6	4	33	6	5	24	13	13
23	44	10	5	8	12	4	31	19	5	37	56	4
24	14	12	3	8	20	4	22	18	13	13	28	7
25	24	16	8	7	24	36	19	33	15	134	16	13
26	13	21	6	8	29	28	62	8	14	78	8	32
27	3	19	10	8	21	14	43	6	10	24	25	21
28	2	23	4	16	11	12	13	12	9	8	18	6
29	3	16	9	15		18	19	6	33	5	18	14
30	10	24	13	7		16	7	6	14	9	17	15
31	30		15	22		26		8		12	15	
MEAN	14	13	13	9	14	18	23	20	12	19	15	12

GEOMAGNETIC ACTIVITY INDICES


DAYS IN SOLAR ROTATION INTERVAL
ROT.-NO.
2022
2023
2024
2025
2026
KEY
0 1 2 3 4 5 6 7 8 9
0 + - 0 + - 0 + - 0 + - 0 + - 0 + - 0 + - 0 + - 0
▲ = sudden commencement
PLANETARY MAGNETIC
THREE-HOUR-RANGE INDICES
Kp (after Bartels)
Kp till 1981 September 30
Ks (from Wingst and Göttingen) till Oct 22

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

SEPTEMBER 1981

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-Bulletin nr. 32h, page 106-116.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

08 2146 A: SOD WNG WIT DOU VIC HRB OTT AQU EBR COI TOL BNG HUA MPO; B: ESK NGK CZT KGL DUM; C: HAD CLF (si: A: DOB)

18 1912 A: DOB NUR WNG WIT DOU VIC HRB OTT AQU EBR COI TOL BNG HUA MPO CZT KGL; B: SOD ESK NGK HAD CLF HTY DUM; C: MMB KAK KNY

19 0137 A: MPO; B: WIT KAK KNY; C: MMB (si: B: TOL)

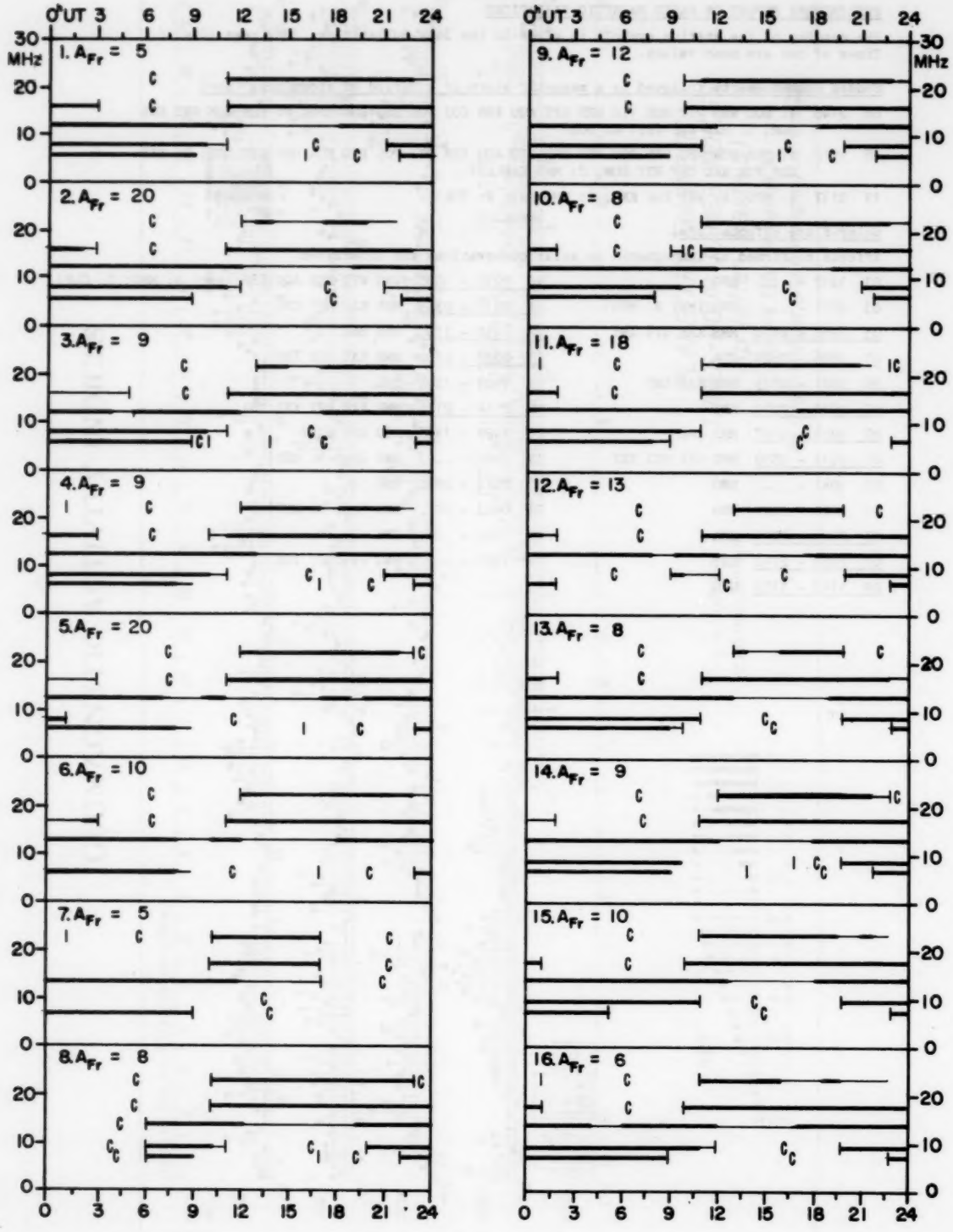
Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

01	1212 -	BNG	10	0939 - 1005	WNG WIT NGK AQU EBR (ssc: A: MPO; C: CLF)
03	0817 -	BNG (bp: B: MPO)	11	0318 - 0345	MMB KAK HTY KNY
03	2256 - 2420	MMB KAK HTY KNY	12	1130 - 1153	WNG BNG
05	1826 - 1829	HUA	13	0007 - 0100	MMB KAK HTY KNY
06	0001 - 0015	MMB KAK KNY	15	1509 - 1546	TOL
07	0010 - 0040	KNY	15	2114 - 2135	MMB KAK HTY KNY HUA
07	0054 - 0107	MMB KAK	16	1422 - 1435	AQU BNG HUA?
07	0511 - 0550	MMB KAK HTY KNY	19	0902 -	BNG (bp: B: MPO)
07	1041 -	BNG	20	0911 - 0930	NGK
07	1220 -	BNG	21	0923 -	BNG (bp: C: MPO)
07	2004 - 2014	HUA	25	1440 -	BNG
07	2223 - 2240	KNY	26	1301 -	BNG (bp: C: TOL)
09	1148 - 1159	WNG			

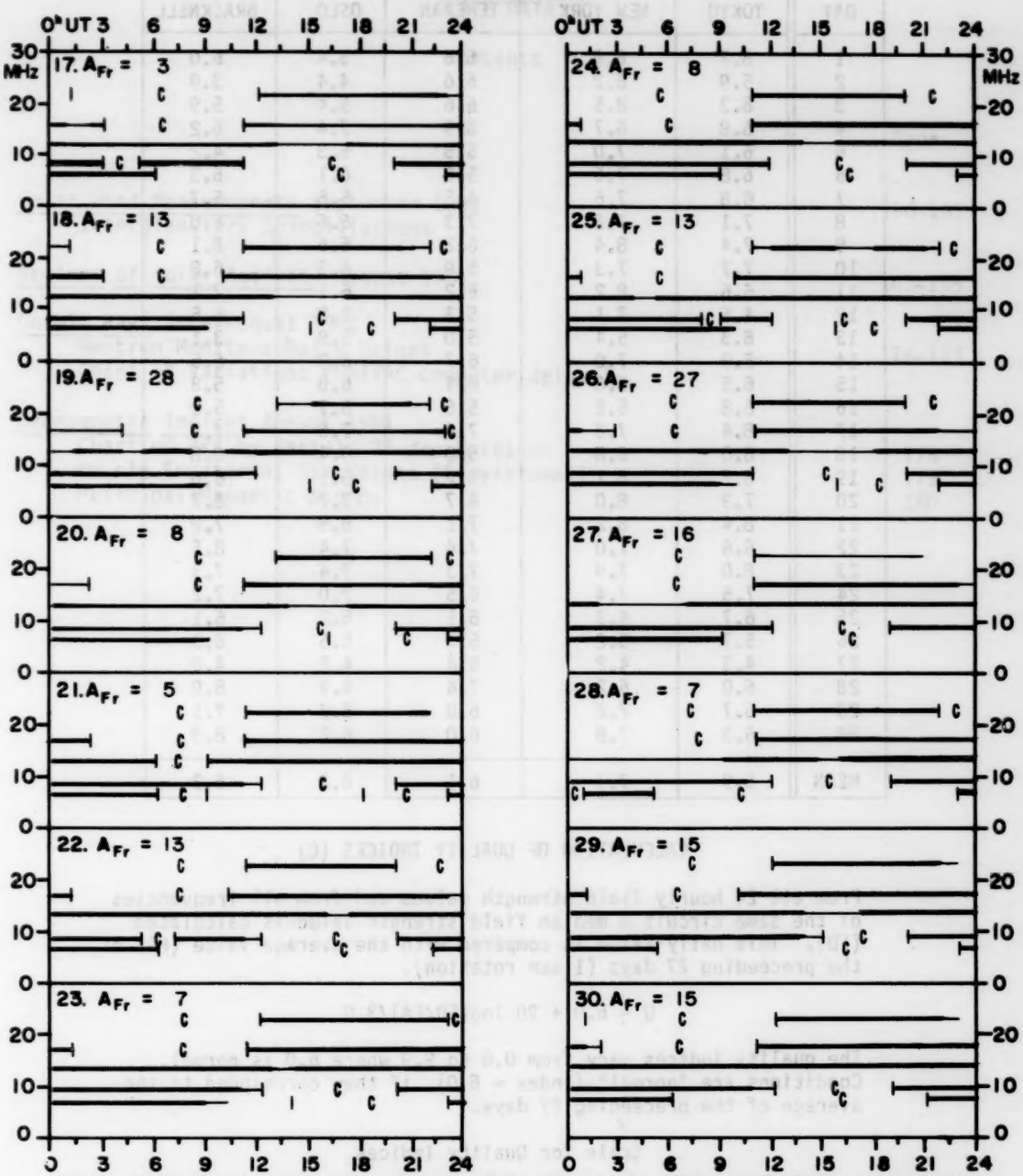
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

SEPTEMBER 1981



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

SEPTEMBER 1981



Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz, observed on a Lüchow - New York circuit are represented above. Heavy solid lines represent field strengths ≥ -12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line.

RADIO PROPAGATION QUALITY INDICES

SEPTEMBER 1981

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	8.7	8.8	5.6	5.4	6.0
2	5.9	6.2	6.6	4.4	3.9
3	8.3	8.5	6.6	5.4	5.9
4	6.8	6.7	6.9	7.4	6.2
5	6.1	7.0	5.5	5.3	4.2
6	6.8	7.6	5.9	6.1	6.3
7	6.8	7.6	4.5	5.5	5.7
8	7.1	7.8	7.3	6.6	6.0
9	7.4	8.4	6.2	6.6	8.1
10	7.7	7.3	5.9	6.3	6.8
11	6.6	8.2	6.2	6.1	7.1
12	4.6	7.1	5.3	5.8	5.5
13	6.3	5.4	5.0	5.9	3.1
14	6.9	7.0	6.7	6.8	6.5
15	6.5	6.6	6.4	6.8	5.8
16	6.8	5.2	5.6	6.1	5.2
17	8.4	7.6	7.0	7.5	7.5
18	8.0	6.8	5.0	6.4	6.8
19	6.2	6.1	4.7	5.1	6.0
20	7.9	8.0	4.7	7.7	8.7
21	8.4	8.2	7.1	8.9	7.8
22	6.6	7.0	7.4	7.4	8.5
23	8.0	7.9	7.3	7.4	7.3
24	7.5	7.4	6.5	7.0	7.2
25	6.7	6.3	6.1	5.2	6.1
26	5.7	5.2	5.7	5.5	6.3
27	4.3	4.2	5.4	4.2	4.0
28	6.0	6.2	7.4	4.9	5.0
29	6.7	7.6	6.0	6.2	7.1
30	6.3	7.8	6.0	6.2	8.9
MEAN	6.9	7.1	6.1	6.2	6.3

CALCULATION OF QUALITY INDICES (Q)

From all 24 hourly field strength values and from all frequencies of the same circuit a median field strength value is calculated (FD). This daily value is compared with the average value (FA) of the preceeding 27 days (1 sun rotation).

$$Q = 6.0 + 20 \log(FD/FA)/3.0$$

The quality indices vary from 0.0 to 9.9 where 6.0 is normal. Conditions are "normal" (index = 6.0), if they correspond to the average of the preceeding 27 days.

Scale for Quality Indices

0.0 - 1.0 = very poor
1.1 - 3.0 = poor
3.1 - 5.0 = fair
5.1 - 7.0 - normal
7.1 - 9.0 = good
9.1 - 9.9 = very good

SGD 447 Part I (Prompt)

LATE DATA

Contents

	Page
Solar Wind Measurements September 1981	160-162
Interplanetary Scintillations	
Regions of Solar Activity August 1981	163-175
Cosmic Rays June-August 1981	
Neutron Monitors Daily Values	176-177
Chart of Variations (UNIVAC computer delays)	
Geomagnetic Indices August 1981	
Chart of Dst by Bartels 27-day Rotation	178
Hourly Equatorial Dst Values (Provisional)	179
Principal Magnetic Storms	180

SOLAR WIND

Interplanetary Scintillations

SEPTEMBER 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
810901	244	0	366	27	388	12	3	3C298	54	19	0.81	-35	-3.64	1712.43
	244	11	400	29	343	41	2	3C48	122	13	1.19	12	1.71	1712.27
	244	12	305	21	326	19	3	3C144-	75	7	0.97	19	1.17	1712.24
	244	15	367	17	345	16	3	3C144	75	7	0.97	19	1.22	1712.28
	244	16	443	18	436	18	3	3C161	66	-6	0.91	21	1.18	1712.31
	244	17	516	105	425	86	2	3C144+	75	7	0.97	18	1.24	1712.33
	244	18	359	57	349	25	3	3C216	41	36	0.66	44	1.48	1712.27
	244	22	314	19	330	66	3	3C283	47	-8	0.73	-41	-4.71	1712.47
810902	245	0	432	21	484	60	3	3C298	53	20	0.80	-35	-3.55	1712.49
	245	10	291	11	250	46	2	3C48	122	12	1.19	12	2.09	1712.23
	245	12	373	17	350	22	3	3C144-	76	7	0.97	17	1.15	1712.31
	245	16	516	26	509	43	2	3C161	66	-5	0.91	21	1.24	1712.37
	245	22	284	14	245	13	2	3C283	46	-8	0.72	-41	-4.96	1712.50
810903	246	0	423	34	381	36	3	3C298	52	20	0.79	-35	-3.64	1712.53
	246	12	406	19	411	14	3	3C144-	77	7	0.98	17	1.17	1712.36
	246	15	379	17	407	15	4	3C144	77	7	0.98	18	1.23	1712.36
	246	16	440	17	361	14	3	3C161	67	-5	0.92	20	1.15	1712.39
	246	17	331	27	277	79	2	3C196	53	27	0.80	33	1.35	1712.33
	246	17	264	25	397	28	2	3C144+	77	7	0.98	18	1.13	1712.28
	246	22	424	31	401	127	2	3C283	45	-9	0.71	-41	-4.46	1712.60
810904	247	0	355	16	335	35	3	3C298	51	21	0.78	-37	-4.03	1712.55
	247	10	329	8	317	8	3	3C48	124	12	1.19	11	1.92	1712.33
	247	12	272	13	396	56	3	3C144-	78	7	0.98	19	1.27	1712.32
	247	14	403	71	358	32	2	3C144	78	7	0.98	19	1.29	1712.40
	247	16	449	40	429	48	2	3C161	68	-4	0.93	20	1.16	1712.43
	247	18	313	12	314	25	2	3C216	43	33	0.68	43	1.33	1712.36
810905	248	12	383	39	397	17	3	3C144-	79	7	0.99	18	1.28	1712.43
	248	14	342	14	336	30	2	3C147	78	15	0.98	16	1.07	1712.41
	248	14	353	26	389	23	3	3C144	79	7	0.99	18	1.24	1712.41
	248	16	275	46	212	41	2	3C161	69	-4	0.93	18	0.89	1712.37
	248	18	355	28	329	33	2	3C216	44	32	0.69	42	1.58	1712.41
	248	22	291	18	272	13	3	3C283	43	-9	0.68	-43	-5.33	1712.63
810906	249	0	483	18	510	40	3	3C298	50	22	0.77	-39	-3.93	1712.67
	249	10	405	63	372	12	3	3C48	126	12	1.20	12	1.77	1712.45
	249	12	354	15	398	17	4	3C144-	80	7	0.99	19	1.34	1712.45
	249	16	408	33	329	34	2	3C161	70	-3	0.94	17	0.97	1712.49
810907	250	10	276	8	264	9	2	3C48	127	12	1.20	10	2.12	1712.39
	250	12	395	18	362	17	4	3C144-	81	7	1.00	17	1.27	1712.50
	250	15	444	17	414	31	3	3C144	81	7	1.00	18	1.34	1712.53
	250	16	418	49	409	16	3	3C161	70	-3	0.94	17	1.00	1712.53
	250	17	404	57	382	53	2	3C216	45	31	0.71	42	1.76	1712.50
810908	251	10	384	13	339	36	2	3C48	128	12	1.21	10	1.75	1712.51
	251	12	584	18	619	19	2	3C144-	82	7	1.00	17	1.28	1712.60
	251	13	556	15	526	14	2	3C147	80	15	0.99	17	1.20	1712.60
	251	14	636	17	637	17	4	3C144	82	7	1.00	18	1.32	1712.61
	251	16	583	33	572	12	3	3C161	71	-3	0.95	18	1.13	1712.61
	251	17	652	24	635	46	2	3C144+	82	7	1.00	18	1.31	1712.61
	251	18	422	45	416	14	2	3C216	46	30	0.72	42	1.88	1712.54
810909	252	1	381	17	357	25	2	3C298	47	23	0.73	-41	-4.43	1712.76
	252	10	615	24	461	29	3	3C48	128	12	1.21	10	1.37	1712.63
	252	12	406	17	438	18	3	3C144-	83	6	1.01	18	1.40	1712.58
	252	14	432	21	434	56	2	3C144	83	6	1.01	18	1.37	1712.59
	252	15	440	29	390	26	2	3C161	72	-2	0.95	15	0.92	1712.61
810910	253	0	397	13	395	24	2	3C298	46	24	0.72	-42	-4.54	1712.81
	253	10	456	36	523	28	2	3C48	129	12	1.21	10	1.60	1712.62
	253	12	310	13	346	18	2	3C144-	84	6	1.01	18	1.42	1712.56
	253	14	477	23	461	42	2	3C144	84	6	1.01	17	1.33	1712.64
	253	15	478	11	348	20	3	3C161	73	-2	0.96	15	0.96	1712.66
	253	22	454	38	359	57	2	3C283	39	-12	0.63	-48	-5.16	1712.89
810911	254	10	410	9	427	44	2	3C48	130	12	1.21	11	1.75	1712.64
	254	12	362	53	392	47	2	3C144-	85	6	1.02	17	1.38	1712.63
	254	14	366	21	371	44	2	3C144	85	6	1.02	18	1.43	1712.63

SOLAR WIND

Interplanetary Scintillations

SEPTEMBER 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	254	15	482	30	501	76	2	3C161	74	-2	0.96	16	0.99	1712.70
	254	21	460	23	711	88	2	3C283	38	-12	0.62	-47	-5.18	1712.93
810912	255	0	371	12	395	13	2	3C298	44	25	0.69	-42	-4.79	1712.88
	255	12	445	31	554	68	3	3C144-	86	6	1.02	18	1.43	1712.70
	255	15	490	25	325	12	2	3C161	75	-2	0.97	16	1.05	1712.74
	255	21	299	27	341	16	2	3C283	37	-13	0.60	-49	-6.22	1712.92
810913	256	0	481	34	385	27	2	3C298	43	26	0.68	-44	-4.63	1712.95
	256	10	347	8	345	60	2	3C48	132	12	1.22	9	1.84	1712.67
	256	15	420	50	369	59	2	3C161	75	-2	0.97	16	1.02	1712.75
810914	257	0	281	32	392	13	2	3C298	43	27	0.68	-45	-5.56	1712.92
	257	21	228	11	220	11	2	3C283	35	-14	0.57	-49	-7.25	1712.96
810915	258	0	328	10	406	96	2	3C298	42	27	0.67	-47	-5.45	1712.99
	258	10	279	8	267	27	2	3C48	134	12	1.23	10	2.27	1712.69
	258	21	299	38	273	59	2	3C283	34	-15	0.56	-50	-6.60	1713.05
810916	259	0	286	16	267	36	2	3C298	41	28	0.66	-47	-5.82	1713.01
	259	14	391	42	384	29	2	3C144	90	6	1.04	17	1.45	1712.83
	259	15	374	28	369	37	2	3C161	78	-2	0.98	16	1.09	1712.84
	259	18	280	18	289	18	2	3C222	30	-13	0.50	58	1.01	1712.78
	259	21	328	42	317	13	2	3C283	33	-16	0.54	-51	-6.51	1713.10
810917	260	0	337	10	305	9	3	3C298	40	29	0.64	-47	-5.60	1713.07
	260	11	281	26	279	31	2	3C144-	91	6	1.05	18	1.64	1712.79
	260	14	427	20	364	24	2	3C144	91	6	1.05	17	1.48	1712.88
	260	17	320	41	290	45	2	3C216	53	24	0.80	35	1.46	1712.83
	260	21	275	24	274	16	2	3C283	33	-16	0.54	-53	-7.15	1713.12
	260	23	299	11	293	25	3	3C298	39	29	0.63	-48	-6.00	1713.10
810919	262	5	476	28	475	26	2	3C409	123	17	1.19	-7	0.18	1713.00
	262	10	401	43	410	25	2	3C48	137	12	1.24	9	1.72	1712.93
	262	11	384	32	409	16	2	3C144-	93	6	1.06	17	1.52	1712.93
	262	13	430	20	445	12	3	3C144	93	6	1.06	17	1.51	1712.95
	262	15	390	27	341	56	2	3C161	81	-2	1.00	15	1.06	1712.95
	262	16	395	30	382	23	2	3C144+	93	6	1.06	17	1.50	1712.94
	262	17	314	41	294	13	2	3C216	55	23	0.82	32	1.35	1712.90
	262	18	326	53	301	27	2	3C222	33	-11	0.54	55	1.57	1712.91
	262	21	442	68	346	72	2	3C283	31	-18	0.52	-53	-6.10	1713.25
810920	263	0	337	11	372	52	3	3C298	38	31	0.62	-50	-5.98	1713.20
	263	11	358	13	340	12	2	3C144-	94	6	1.06	17	1.55	1712.95
	263	13	387	13	384	15	3	3C144	94	6	1.06	16	1.48	1712.97
	263	15	351	71	349	16	2	3C161	81	-2	1.00	15	1.06	1712.97
	263	16	379	34	396	39	2	3C144+	94	6	1.06	18	1.61	1712.97
	263	17	325	20	298	25	2	3C216	56	22	0.83	33	1.47	1712.95
	263	18	321	39	277	96	2	3C222	34	-11	0.56	54	1.48	1712.94
	263	19	373	17	359	32	2	3C237	27	-5	0.45	63	1.98	1712.96
	263	21	362	47	401	29	2	3C283	30	-19	0.50	-54	-6.73	1713.27
810921	264	0	338	39	341	56	3	3C298	37	32	0.60	-50	-6.04	1713.24
	264	9	335	35	354	45	2	3C48	138	12	1.24	9	1.95	1712.96
	264	11	300	20	336	16	2	3C144-	95	6	1.07	16	1.60	1712.95
	264	13	329	14	311	16	3	3C144	95	6	1.07	18	1.69	1712.97
	264	15	416	75	438	63	2	3C161	82	-2	1.00	15	1.13	1713.04
	264	18	427	25	396	24	2	3C222	35	-10	0.57	53	2.08	1713.01
	264	19	347	15	342	57	3	3C237	28	-5	0.47	61	1.76	1712.99
810922	265	5	398	11	373	10	2	3C409	121	17	1.18	-8	0.17	1713.08
	265	9	267	13	299	82	2	3C48	139	12	1.24	8	2.27	1712.93
	265	11	420	18	391	17	3	3C144-	96	6	1.07	17	1.55	1713.05
	265	13	377	20	377	17	3	3C144	96	6	1.07	17	1.58	1713.04
	265	15	336	8	318	9	3	3C161	83	-2	1.01	16	1.20	1713.03
	265	16	366	41	367	40	2	3C196	68	17	0.93	20	1.13	1713.05
	265	18	369	28	399	32	2	3C222	36	-10	0.59	52	1.85	1713.03
	265	19	361	15	411	25	2	3C237	29	-5	0.48	61	1.89	1713.03
	265	21	390	87	377	31	2	3C283	28	-21	0.47	-56	-6.82	1713.36
810923	266	11	401	12	381	12	3	3C144-	96	6	1.07	17	1.57	1713.08
	266	13	381	10	375	10	3	3C144	97	6	1.08	16	1.56	1713.07
	266	15	375	10	348	9	3	3C161	84	-2	1.01	15	1.17	1713.09
	266	16	442	32	412	21	2	3C196	69	16	0.93	21	1.25	1713.12

SOLAR WIND

Interplanetary Scintillations

SEPTEMBER 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	266	16	368	15	352	34	2	3C144+	97	6	1.08	18	1.69	1713.07
	266	17	272	38	266	38	2	3C222	37	-9	0.60	51	1.11	1713.03
	266	18	331	23	352	13	2	3C237	30	-5	0.50	59	1.65	1713.05
	266	21	307	*	271	*	2	3C283	27	-22	0.45	-57	-7.65	1713.38
	266	23	292	8	272	11	3	3C298	34	35	0.56	-53	-6.83	1713.34
810924	267	5	347	75	282	13	2	3C409	120	17	1.18	-8	0.32	1713.13
	267	11	317	11	332	11	3	3C144-	97	6	1.08	17	1.71	1713.07
	267	13	353	16	347	15	3	3C144	98	6	1.08	16	1.62	1713.10
	267	14	358	9	353	9	3	3C161	85	-2	1.02	16	1.24	1713.12
	267	16	334	32	326	31	2	3C196	70	16	0.94	19	1.10	1713.11
	267	16	397	24	392	17	2	3C144+	98	6	1.08	16	1.60	1713.12
	267	17	347	13	385	62	2	3C222	38	-9	0.62	50	1.68	1713.10
	267	18	323	12	359	19	2	3C237	31	-4	0.52	58	1.59	1713.09
	267	21	352	17	329	35	2	3C283	27	-23	0.45	-57	-7.26	1713.43
	267	23	281	13	254	23	2	3C298	34	36	0.56	-52	-6.92	1713.38
810925	268	11	388	17	383	42	2	3C144-	98	6	1.08	16	1.57	1713.15
	268	13	349	16	383	25	2	3C144	99	6	1.09	16	1.64	1713.13
	268	15	367	60	365	62	2	3C161	86	-2	1.02	15	1.22	1713.16
	268	17	296	34	302	49	2	3C222	39	-9	0.63	49	1.37	1713.11
	268	18	347	19	346	23	2	3C237	32	-4	0.53	58	1.84	1713.13
	268	21	278	47	252	14	2	3C283	26	-24	0.44	-57	-8.13	1713.45
	268	23	342	41	369	30	2	3C298	33	37	0.54	-54	-6.58	1713.44
810926	269	11	570	48	571	32	2	3C144-	99	6	1.09	16	1.43	1713.24
	269	13	348	*	342	*	2	3C144	100	6	1.09	16	1.70	1713.16
	269	15	293	*	359	*	2	3C161	86	-2	1.02	16	1.30	1713.14
	269	16	372	*	322	*	2	3C144+	100	6	1.09	16	1.67	1713.18
	269	17	310	*	353	*	2	3C222	40	-8	0.64	49	1.50	1713.15
	269	18	346	*	351	*	2	3C237	33	-4	0.54	57	1.82	1713.17
	269	20	276	60	266	45	2	3C283	25	-25	0.42	-58	-8.33	1713.49
	269	23	421	16	389	10	3	3C298	32	38	0.53	-54	-6.24	1713.50
810927	270	13	276	*	331	*	2	3C144	100	6	1.09	16	1.82	1713.14
	270	14	404	*	433	*	2	3C161	87	-2	1.03	15	1.23	1713.25
	270	16	299	*	230	*	2	3C144+	101	6	1.10	15	1.73	1713.17
	270	16	251	*	276	*	2	3C216	61	19	0.87	27	1.07	1713.15
	270	17	340	*	332	*	2	3C222	41	-8	0.66	48	1.72	1713.20
	270	23	430	18	436	52	3	3C298	31	39	0.52	-55	-6.30	1713.54
810928	271	11	381	20	448	86	2	3C144-	101	6	1.10	17	1.71	1713.25
	271	13	555	27	448	86	2	3C144	101	6	1.10	16	1.50	1713.32
	271	14	340	11	318	38	2	3C161	88	-2	1.03	14	1.19	1713.25
	271	16	255	18	230	69	2	3C144+	102	6	1.10	16	1.95	1713.16
	271	18	476	24	444	37	2	3C237	35	-3	0.57	55	2.45	1713.27
	271	22	321	29	364	31	3	3C298	31	40	0.52	-55	-7.01	1713.55
810929	272	5	300	11	287	8	2	3C409	116	17	1.16	-8	0.39	1713.28
	272	10	514	58	441	35	2	3C144-	102	6	1.10	16	1.53	1713.34
	272	13	402	*	378	*	2	3C144	102	5	1.10	16	1.66	1713.30
	272	14	293	*	251	*	2	3C161	89	-2	1.04	14	1.30	1713.25
	272	17	304	*	312	*	2	3C222	43	-7	0.68	45	1.46	1713.26
	272	18	320	*	322	*	2	3C237	36	-3	0.59	54	1.69	1713.27
	272	20	250	47	250	68	2	3C283	23	-29	0.39	-60	-9.11	1713.60
	272	23	313	12	382	35	3	3C298	30	41	0.50	-55	-7.16	1713.59
810930	273	10	502	25	492	24	3	3C144-	103	5	1.11	16	1.60	1713.37
	273	13	426	37	420	29	2	3C144	103	5	1.11	16	1.62	1713.35
	273	14	478	39	458	16	2	3C161	90	-2	1.04	15	1.26	1713.38
	273	17	375	19	358	18	2	3C222	44	-7	0.69	45	1.86	1713.33
	273	18	382	23	336	33	2	3C237	37	-3	0.60	53	2.02	1713.32

VMID IS A MEAN AND VPK IS A MAXIMUM VELOCITY IN THE IPS SCATTERING REGION.
THE REGION'S CENTROID IS SPECIFIED BY LAT, DIST, DLON.
LAG AND ROTATION NUMBER GIVE MAPPING TO EARTH AND SUN AT VMID.
* INDICATES NO ERROR AVAILABLE, SINCE ONLY TWO ANTENNAS WERE OPERATING.

REGIONS OF SOLAR ACTIVITY

AUGUST 1981

HALE REGION 17770 CMP DATE 1.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	28	17770	S19 E64	214	400	3.0		S23 E71				H		1	AXX
81	07	29	17770	S21 E52	213	200	3.0		S21 E55				R	30	1	AXX
81	07	30	17770	S20 E38	214	300	3.0									
81	07	31	17770	S20 E24	215	300	3.0									
81	08	1	17770	S20 E11	214	300	3.0									
81	08	2	17770	S19 W06	227	200	2.5									
81	08	3	17770	S20 W17	216	100	2.0									
81	08	4	17770	S20 W28	214	100	2.0									
81	08	5	17770	S21 W43	215	100	1.5									

HALE REGION 17769 CMP DATE 1.7

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	26	17769	N13 E80	225	200	2.5									
81	07	27	17769	N14 E76	215	700	3.5	22427	N14 E77	215	AP	3	H	140	7	CAO
81	07	28	17769	N15 E65	213	700	3.0	22427	N14 E64	216	(B)	4	H	170	10	CSO
81	07	29	17769	N15 E50	215	1100	3.5	22436	N19 E51	215	(B)	4	H	100	8	DAO
81	07	29	17769	N15 E50	215	1100	3.5	22427	N15 E51	215	(B)	5	H	100	8	DAO
81	07	30	17769	N15 E36	216	1300	3.0	22427	N15 E37	216	(BF)	4	B	90	10	DSI
81	07	30	17769	N15 E36	216	1300	3.0	22436	N19 E36	217	(B)	4	B	90	10	DSI
81	07	31	17769	N15 E25	214	1900	3.5	22427	N16 E24	215	(B)	5	B	130	20	DAI
81	08	1	17769	N16 E10	215	1900	3.5	22427	N16 E11	215	(B)	5	H	330	43	EAI
81	08	2	17769	N17 W04	225	1900	3.5	22427	N17 W02	216	(B)	5	H	490	58	EKI
81	08	3	17769	N17 W17	216	2200	3.5	22427	N17 W16	216	(D)	5	H	670	44	EAI
81	08	4	17769	N17 W30	216	2500	3.5	22427	N17 W31	218	(BY)	5	R	460	62	EKO
81	08	5	17769	N17 W42	214	2900	3.5	22427	N17 W43	217	(BY)	5	H	400	27	EKI
81	08	6	17769	N18 W55	214	2300	3.5	22427	N17 W57	217	(BP)	5	H	320	7	DSO
81	08	7	17769	N19 W69	214	1900	3.5	22427	N15 W71	218	(AP)	4	B	140	2	HAX
81	08	8	17769	N17 W80	213	800	3.5	22427	N15 W85	219	AP	2	H	250	1	HHX

HALE REGION 17772 CMP DATE 4.4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	29	17772	S14 E70	195	100	2.0									
81	07	30	17772	S14 E61	191	100	2.5									
81	07	31	17772	S15 E48	191	200	3.0									
81	08	1	17772	S15 E35	190	200	3.0									
81	08	2	17772	S14 E19	202	200	2.5									
81	08	3	17772	S15 E08	191	200	2.0	22445	S15 E20	180	(AP)	2	H	10	1	AXX
81	08	4	17772	S15 W04	190	200	2.0									
81	08	5	17772	S15 W12	184	200	2.0		S14 W11				H		1	AXX
81	08	6	17772	S15 W29	188	200	2.5									
81	08	7	17772	S14 W42	187	200	2.5									
81	08	8	17772	S14 W54	187	200	2.0									

HALE REGION 17771 CMP DATE 5.0

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	29	17771	N09 E80	185	400	3.0	22437	N08 E80	186	(AP)	3	P	20	1	AXX
81	07	30	17771	N10 E69	183	700	3.5	22437	N09 E69	184	(AP)	3	B	10	1	AXX
81	07	31	17771	N09 E57	182	800	3.5	22437	N09 E55	184	(AP)	3	H	10	2	BXO
81	08	1	17771	N09 E44	181	500	3.5	22437	N09 E42	184	(AP)	2	L		1	AXX
81	08	2	17771	N09 E36	185	500	3.0									
81	08	3	17771	N10 E15	184	400	3.0	22444	N08 E17	183	X	1	B		5	BXO
81	08	4	17771	N10 E04	182	400	3.0									
81	08	5	17771	N10 W11	183	300	3.0									
81	08	6	17771	N09 W24	183	400	3.0									
81	08	7	17771	N11 W38	183	300	2.5									
81	08	8	17771	N11 W51	184	200	2.5									

CONT

REGIONS OF SOLAR ACTIVITY

AUGUST 1981

HALE REGION 17771 (CONT) CMP DATE 5.0

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	9	17771	N10	W63	182	200	2.5										
81	08	10	17771	N09	W76	180	100	2.0										

HALE REGION 17782 CMP DATE 6.9

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	8	17782	N15	W23	156	200	3.0	22454	N15	W21	155	(B)	4	H	40	6	DRO
81	08	9	17782	N15	W36	155	600	3.5	22454	N15	W36	157	(B)	4	H	50	12	CRO
81	08	10	17782	N14	W54	158	400	3.0	22454	N15	W51	158	(B)	3	H	30	6	BXO
81	08	11	17782	N14	W63	156	400	3.0	22454	N14	W65	159	(BP)	4	H	10	2	AXX
81	08	12	17782	N16	W75	156	300	3.0	22454	N15	W78	160	(AP)	3	H	20	3	AXX

HALE REGION 17776 CMP DATE 7.8 NEW, IN LOCATION OF REGION 17731

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	3	17776	S25	E54	145	200	3.0										
81	08	4	17776	S25	E43	143	100	3.0	22449	S26	E44	143	(B)	3				
81	08	5	17776	S25	E28	144	200	3.0	22449	S25	E30	144	(B)	3	H	20	6	BXO
81	08	6	17776	S26	E15	144	500	3.0	22449	S25	E17	143	(B)	4	H	70	9	DAO
81	08	7	17776	S25	W00	145	500	3.0	22449	S26	E03	144	(BY)	4	B	50	9	BXO
81	08	8	17776	S25	W12	145	900	3.5	22449	S25	W09	143	(BY)	3	H	60	12	CRO
81	08	9	17776	S25	W25	144	1000	3.5	22449	S25	W23	144	(B)	4	H	60	11	DSO
81	08	10	17776	S25	W41	145	900	3.5	22449	S25	W37	144	(B)	3	H	40	10	BXO
81	08	11	17776	S25	W51	144	800	3.0	22449	S25	W50	144	(B)	4	H	90	7	CAO
81	08	12	17776	S23	W62	143	900	3.0	22449	S23	W61	143	(B)	4	H	500	11	DAI
81	08	13	17776	S23	W76	143	800	3.0	22449	S23	W75	143	B	3	B	50	3	BXO

HALE REGION 17775 CMP DATE 9.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	2	17775	N11	E80	141	300	2.0										
81	08	3	17775	N09	E74	125	1000	3.0	22446	N11	E75	125	(AP)	3	H	140	2	HAX
81	08	4	17775	N10	E65	121	1100	3.0	22446	N11	E60	127	(BP)	4	B	140	2	CRO
81	08	5	17775	N09	E49	123	900	3.0	22446	N10	E49	125	(BP)	5	H	230	3	HAX
81	08	6	17775	N09	E37	122	1000	3.0	22446	N10	E35	125	(BP)	5	H	290	2	HSX
81	08	7	17775	N10	E24	121	1000	3.0	22446	N10	E23	124	(BP)	5	B	220	4	CHO
81	08	8	17775	N09	E12	121	1000	3.0	22446	N10	E10	124	(BP)	5	H	240	8	DSO
81	08	9	17775	N10	W04	123	800	3.0	22446	N10	W05	126	(BP)	5	H	240	1	HSX
81	08	10	17775	N10	W19	123	1200	3.0	22459	N20	W05	112	(AP)	2				
81	08	10	17775	N10	W19	123	1200	3.0	22446	N11	W17	124	(BP)	5	H	270	1	HHX
81	08	11	17775	N10	W29	122	700	3.0	22446	N11	W30	124	(BP)	5	B	230	1	HHX
81	08	12	17775	N12	W42	123	700	3.0	22446	N11	W45	127	(AP)	5	H	280	1	HHX
81	08	13	17775	N11	W56	123	700	3.0	22477	N17	W65	133	(AP)	2	B	270	1	HSX
81	08	13	17775	N11	W56	123	700	3.0	22446	N11	W57	125	(BP)	5	B	270	1	HSX
81	08	14	17775	N11	W70	124	500	3.0	22446	N10	W70	125	(AP)	4	H	140	1	HSX
81	08	15	17775						22446	N10	W85	126	AP	2	H	130	1	HSX

HALE REGION 17777 CMP DATE 10.0 FRONT HALF NEW, REAR IS FRONT OF 17737 ROTATIONS 1 AND 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	3	17777	S19	E80	119	400	3.5	22447	S08	E81	119	(AP)	2	H	200	2	DSO
81	08	4	17777	S09	E71	115	1400	3.5	22447	S09	E71	116	(BY)	4	B	260	24	DAI
81	08	5	17777	S09	E56	116	3200	3.5	22447	S09	E60	114	(D)	5	H	2250	41	FKC
81	08	6	17777	S09	E45	114	4600	3.5	22447	S10	E44	116	(D)	5	H	2020	39	FKC
81	08	7	17777	S09	E28	117	4500	3.5	22453	S16	E22	125	(AF)	2				

CONT

REGIONS OF SOLAR ACTIVITY

AUGUST 1981

HALE REGION 17777 (CONT) CMP DATE 10.0 FRØNT HALF NEW, REAR IS FRØNT ØF 17737 ROTATIØNS 1 AND 2

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	Ø8	7	17777	SØ9 E28	117	4500	3.5	22447	S1Ø E3Ø	117	(D)	5	B	1540	49	FKI
81	Ø8	8	17777	S1Ø E15	118	3800	3.5	22447	S1Ø E18	116	(D)	5	H	1370	46	FKI
81	Ø8	9	17777	SØ9 EØ3	116	4500	3.5	22447	S1Ø EØ4	117	(D)	5	H	880	61	FKI
81	Ø8	1Ø	17777	S1Ø W12	116	5100	3.5	22447	S1Ø W1Ø	117	(D)	5	H	81Ø	49	FKI
81	Ø8	11	17777	SØ9 W25	118	5400	3.5	22447	S1Ø W25	119	(D)	5	H	1Ø8Ø	39	FKI
81	Ø8	12	17777	SØ8 W38	119	5400	3.5	22447	SØ9 W38	12Ø	(D)	5	H	1160	5Ø	FKI
81	Ø8	12	17777	SØ8 W38	119	5400	3.5	22472	SØ5 W22	1Ø4	(AF)	3	L	1310	88	FKI
81	Ø8	13	17777	SØ8 W51	118	5400	3.Ø	22447	SØ8 W5Ø	118	(D)	4	B	750	26	FKI
81	Ø8	14	17777	SØ8 W65	119	4700	3.5	22447	SØ9 W65	12Ø	(D)	4	H	8ØØ	16	FKO
81	Ø8	15	17777	SØ9 W77	118	2ØØØ	3.Ø	22447	SØ9 W76	117	(AP)	3	H	1ØØ	4	DKO
81	Ø8	15	17777	SØ9 W77	118	2ØØØ	3.Ø	22487	S16 W77	118	(AP)	2	H	4Ø	2	DAO
81	Ø8	16	17777	SØ8 W8Ø	1Ø8	5ØØ	2.Ø	22447	SØ7 W87	115	AP	1	R	2Ø	4	BXO

HALE REGION 17791 CMP DATE 10.3

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	Ø8	12	17791					22471	S17 W33	115	(B)	3	H	1Ø	3	BXO
81	Ø8	13	17791	S16 W45	112	3ØØ	3.Ø	22471	S18 W45	113	(BY)	3	B	2Ø	7	BXO
81	Ø8	14	17791	S19 W59	113	3ØØ	3.Ø	22471	S19 W55	11Ø	(BY)	4	H	2Ø	8	BXO
81	Ø8	15	17791	S21 W71	112	3ØØ	3.Ø	22471	S2Ø W68	1Ø9	(B)	3	H	4Ø	2	DAO
81	Ø8	16	17791	S19 W8Ø	1Ø8	1ØØ	2.Ø	22471	S2Ø W83	111	AF	1	R	2Ø	2	BXO

HALE REGION 17781 CMP DATE 11.9 RETURN ØF REAR PART ØF REGION 17736 ROTATIØN 4

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	Ø8	6	17781	S3Ø E68	91	3ØØ	2.5									
81	Ø8	7	17781	S29 E54	91	6ØØ	3.Ø									
81	Ø8	8	17781	S3Ø E43	9Ø	9ØØ	3.Ø	22455	S25 E46	88	(AP)	2				
81	Ø8	9	17781	S28 E25	94	4ØØ	3.Ø	22456	S27 E24	97	(AF)	3				
81	Ø8	9	17781	S28 E25	94	4ØØ	3.Ø	22455	S25 E33	88	(AP)	2				
81	Ø8	1Ø	17781	S28 E1Ø	94	4ØØ	3.Ø	22456	S26 E18	89	X	1				
81	Ø8	11	17781	S29 EØ2	91	4ØØ	3.Ø									
81	Ø8	12	17781	S26 WØ9	9Ø	4ØØ	3.5									
81	Ø8	13	17781	S26 W21	88	4ØØ	2.5									
81	Ø8	14	17781	S26 W35	89	4ØØ	3.Ø									
81	Ø8	15	17781	S26 W48	89	4ØØ	3.Ø	22484	S24 W47	88	(B)	4	H		1	AXX
81	Ø8	16	17781	S24 W6Ø	88	3ØØ	3.Ø	22484	S22 W6Ø	88	(B)	3	B	2Ø	2	BXO
81	Ø8	17	17781					22484	S25 W73	88	(AP)	3	R	2Ø	1	AXX

HALE REGION 17778 CMP DATE 12.1

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	Ø8	6	17778	N24 E73	86	3ØØ	3.5	22450	N25 E71	89	(B)	3	H	2Ø	2	AXX
81	Ø8	7	17778	N25 E56	89	5ØØ	3.5	22450	N25 E58	89	(B)	4	B	15Ø	4	CHO
81	Ø8	8	17778	N24 E44	89	6ØØ	3.Ø	22450	N25 E46	88	(B)	5	H	21Ø	4	DSO
81	Ø8	9	17778	N26 E32	87	6ØØ	3.5	22450	N25 E33	88	(B)	5	H	18Ø	5	DSO
81	Ø8	1Ø	17778	N25 E15	89	4ØØ	3.Ø	22450	N25 E2Ø	87	(B)	4	H	15Ø	7	DAO
81	Ø8	11	17778	N25 EØ5	88	6ØØ	3.Ø	22450	N24 EØ5	89	(BP)	4	H	11Ø	3	HAX
81	Ø8	12	17778	N25 WØ7	88	6ØØ	3.Ø	22450	N25 WØ7	89	(BP)	5	H	11Ø	12	CAO
81	Ø8	13	17778	N25 W2Ø	87	8ØØ	3.Ø	22450	N25 W21	89	(AF)	4	B	3Ø	2	DSO
81	Ø8	14	17778	N25 W32	86	8ØØ	3.5	22450	N25 W33	88	(BF)	3	H	3Ø	3	BXO
81	Ø8	15	17778	N25 W43	84	5ØØ	3.Ø	22450	N27 W47	88	(BF)	3	H	3Ø	6	BXO
81	Ø8	16	17778	N26 W58	86	5ØØ	2.5	22450	N25 W59	87	(B)	2	R	2Ø	2	BXO
81	Ø8	17	17778	N26 W71	84	5ØØ	2.5									
81	Ø8	18	17778	N26 W77	77	3ØØ	2.Ø									

REGIONS OF SOLAR ACTIVITY

AUGUST 1981

HALE REGION 17779 CMP DATE 12.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	6	17779	N15	E80	79	300	3.0	22451	N15	E80	80	(AP)	2				
81	08	7	17779	N15	E65	80	300	3.0										
81	08	8	17779	N15	E53	80	100	3.0										
81	08	9	17779	N16	E38	81	100	3.0										
81	08	10	17779	N15	E21	83	100	3.0										
81	08	11	17779	N15	E10	83	100	3.0		N12	E09				R	20	1	HRX
81	08	12	17779	N16	W03	84	100	2.5										
81	08	13	17779	N16	W16	83	100	3.0										

HALE REGION 17780 CMP DATE 12.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	6	17780	S12	E76	83	200	3.0	22452	S12	E80	80	(AF)	3	H	70	2	HAX
81	08	7	17780	S12	E64	81	500	3.0	22452	S12	E64	83	(AP)	3	B	40	3	BXO
81	08	8	17780	S13	E50	83	300	3.0	22452	S12	E51	83	(B)	3	H	20	3	CRO
81	08	9	17780	S11	E46	73	100	3.0	22452	S12	E35	86	(AP)	4	H	20	2	HRX
81	08	10	17780	S12	E21	83	200	3.0	22452	S12	E21	86	(AP)	4	H	20	1	HRX
81	08	11	17780	S12	E13	80	100	2.5	22467	S12	E13	81	(AF)	1	H	10	1	AXX
81	08	11	17780	S12	E13	80	100	2.5	22452	S13	E07	87	(AP)	4	H	10	1	AXX
81	08	12	17780	S11	W01	82	200	3.0	22452	S11	W06	88	(BP)	4	H	20	1	HAX
81	08	13	17780	S12	W15	82	200	2.5	22452	S12	W19	87	(AP)	4	B		1	AXX
81	08	14	17780	S10	W31	85	200	3.0	22452	S12	W30	85	(B)	3	B	10	1	AXX
81	08	15	17780	S12	W43	84	200	2.5		S12	W39				L		1	AXX
81	08	16	17780	S11	W55	83	200	2.0										
81	08	17	17780	S11	W69	82	200	2.0										

HALE REGION 17785 CMP DATE 12.7

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	9	17785	N03	E46	73	100	3.0										
81	08	10	17785	N03	E21	83	200	3.0	22461	N06	E30	77	(AP)	2				
81	08	10	17785	N03	E21	83	200	3.0	22462	N03	E32	75	(AP)	2				
81	08	11	17785	N02	E15	78	200	3.0	22462	N03	E18	76	(B)	3	H	10	1	AXX
81	08	12	17785	N03	E00	81	200	3.0	22462	N05	E05	77	(AP)	3	L	10	6	BXO
81	08	13	17785	N03	W15	82	200	3.0	22478	N04	W13	81	(B)	3	B	10	2	BXO
81	08	14	17785	N04	W29	83	200	3.0	22478	N05	W23	78	(AF)	3	M		1	AXX
81	08	15	17785	N03	W41	82	200	2.5										
81	08	16	17785	N04	W56	84	200	2.0										
81	08	17	17785	N03	W69	82	100	2.0										

HALE REGION 17784 CMP DATE 14.5 RETURN OF REGION 17743 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	8	17784	S13	E80	53	200	2.5										
81	08	9	17784	S09	E64	55	900	3.0	22457	S09	E65	56	(B)	4	H		1	AXX
81	08	10	17784	S11	E47	57	700	3.0	22457	S08	E53	54	(AP)	2	H		1	AXX
81	08	10	17784	S11	E47	57	700	3.0	22463	S13	E50	57	X	1	H		1	AXX
81	08	11	17784	S10	E39	54	900	3.0	22457	S10	E39	55	(B)	2	B	10	1	AXX
81	08	12	17784	S09	E24	57	600	3.5	22457	S07	E24	58	(AP)	3	H	10	4	AXX
81	08	12	17784	S09	E24	57	600	3.5	22474	S06	E34	48	(AP)	2	H	10	4	AXX
81	08	13	17784	S09	E13	54	600	3.0	22457	S09	E11	57	(AP)	3	B	10	2	BXO
81	08	14	17784	S09	W03	57	600	3.0	22457	S08	E01	54	(B)	3	M	20	1	HRX
81	08	14	17784	S09	W03	57	600	3.0	22481	S12	W07	62	(AP)	2	H	10	1	AXX
81	08	15	17784	S11	W14	55	600	3.0	22457	S08	W17	58	(AP)	2	H	10	1	AXX
81	08	16	17784	S11	W28	56	600	3.0	22457	S11	W26	54	(B)	3	B	10	1	AXX
81	08	17	17784	S08	W42	55	600	3.0	22457	S11	W41	56	(AP)	3	H	20	2	AXX
81	08	18	17784	S11	W54	54	400	2.5	22457	S09	W55	57	(AP)	3	M		1	AXX
81	08	19	17784	S10	W68	56	400	3.0	22457	S13	W66	55	(B)	3	H	20	2	CSO
81	08	20	17784	S10	W76	50	300	2.5		S12	W72				L	30	2	CSO

REGIONS OF SOLAR ACTIVITY

AUGUST 1981

HALE REGION 17783 CMP DATE 14.8 RETURN OF REGION 17742 ROTATION 3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	8	17783	N11	E85	48	500	3.0										
81	08	9	17783	N13	E69	50	800	3.5	22458	N11	E71	50	(AF)	2				
81	08	10	17783	N12	E50	54	400	3.5										
81	08	11	17783	N12	E42	51	400	3.5		N17	E52				L	10	2	BXO
81	08	12	17783	N13	E29	52	400	3.5	22475	N11	E41	41	(B)	3	H	30	3	BXO
81	08	12	17783	N13	E29	52	400	3.5	22473	N13	E30	52	(AF)	3	H	30	3	BXO
81	08	13	17783	N13	E15	52	400	3.0		N11	E18				B	.	1	AXX
81	08	14	17783	N13	E01	53	400	3.0										
81	08	15	17783	N13	W11	52	400	3.0										
81	08	16	17783	N13	W26	54	400	3.0										
81	08	17	17783	N12	W41	54	400	2.5										
81	08	18	17783	N12	W53	53	400	2.5		N10	W44				P	40	10	CSO
81	08	19	17783	N13	W65	53	300	2.0		N10	W55				H	100	9	DSI

HALE REGION 17797 CMP DATE 15.5

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	16	17797	N10	W15	43	200	2.5	22488	N10	W15	43	(AF)	3	B	20	3	BXO
81	08	17	17797	N11	W30	43	200	3.0		N10	W25				B		1	AXX
81	08	18	17797	N09	W43	43	400	3.5	22488	N10	W42	44	(B)	4	H	50	9	CAO
81	08	19	17797	N10	W55	43	700	3.0	22488	N10	W57	46	(B)	4	H	100	9	DSI
81	08	20	17797	N11	W69	43	800	3.0	22488	N10	W70	45	(B)	3	H	100	7	CSO
81	08	21	17797	N11	W79	41	600	3.5	22488	N12	W80	42	B	2	H		1	AXX

HALE REGION 17787 CMP DATE 15.8

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	10	17787	S32	E63	41	300	3.5	22464	S31	E68	39	(AP)	3	H		1	AXX
81	08	11	17787	S31	E51	42	200	3.0	22464	S31	E57	37	(AP)	3	H	10	1	AXX
81	08	12	17787	S29	E39	42	300	3.5	22464	S29	E42	40	(B)	3	P		1	AXX
81	08	13	17787	S29	E28	39	400	3.0	22464	S29	E25	43	(AP)	2				
81	08	14	17787	S29	E15	39	300	3.0										
81	08	15	17787	S30	E02	39	200	2.5										
81	08	16	17787	S30	W10	38	100	2.0										
81	08	17	17787	S29	W23	36	100	2.5										
81	08	18	17787	S28	W36	36	100	2.5	22498	S35	W30	32	X	1				
81	08	19	17787	S30	W49	37	100	2.0										

HALE REGION 17786 CMP DATE 16.2 RETURN OF REGION 17746 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	9	17786	S12	E80	39	300	2.5										
81	08	10	17786	S15	E68	36	500	3.5	22465	S14	E72	35	(B)	3	H		1	AXX
81	08	11	17786	S15	E56	37	500	3.0	22465	S13	E60	34	(AP)	2	H		1	AXX
81	08	12	17786	S14	E45	36	500	3.5	22465	S15	E49	33	(AP)	3	H	20	2	AXX
81	08	13	17786	S14	E33	34	500	3.0	22465	S12	E35	33	(B)	4	B	10	3	BXO
81	08	14	17786	S14	E18	36	500	3.0	22465	S13	E23	32	(AF)	2	H	10	1	AXX
81	08	15	17786	S14	E06	35	400	3.0		S19	E16				B	30	4	BXO
81	08	16	17786	S14	W06	34	400	3.0										
81	08	17	17786	S14	W21	34	400	3.0										
81	08	18	17786	S14	W34	34	300	2.5										
81	08	19	17786	S15	W46	34	200	2.5										
81	08	20	17786	S14	W58	32	200	2.5										

REGIONS OF SOLAR ACTIVITY

AUGUST 1981

HALE REGION 17789 CMP DATE 17.1

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	12	17789	N19 E56	25	100	3.0	22476	S20 E59	23	(B)	3	H	20	2	AXX
81	08	13	17789	S19 E45	22	200	3.0	22476	S19 E45	23	(B)	3	B	20	3	CRO
81	08	14	17789	S19 E30	24	400	3.0	22476	S20 E32	23	(B)	3	H	50	7	CRO
81	08	15	17789	S21 E17	24	400	3.0	22476	S19 E18	23	(B)	4	H	20	8	BXO
81	08	16	17789	S19 E05	23	400	3.0	22476	S19 E05	23	B	3	B	20	3	BXO
81	08	17	17789	S19 W09	22	400	3.0	22476	S20 W07	22	(BF)	3	H		1	AXX
81	08	18	17789	S19 W21	21	400	3.5	22476	S20 W20	22	(AF)	3	B	20	1	AXX
81	08	19	17789	S20 W36	24	200	3.0									
81	08	20	17789	S19 W48	22	200	3.0									
81	08	21	17789	S20 W61	23	100	2.5									

HALE REGION 17788 CMP DATE 17.8 RETURN OF REGIONS 17748 AND 17749 ROTATIONS 2 AND 3

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	11	17788	N15 E76	17	400	3.0	22468	N14 E76	18	(AP)	2				
81	08	12	17788	N15 E77	4	500	3.0	22468	N14 E61	21	(AP)	2	H	10	2	BXO
81	08	13	17788	N15 E51	16	600	3.5	22468	N15 E49	19	(AP)	2				
81	08	14	17788	N14 E41	13	1000	3.5	22482	N16 E50	5	(B)	3	B		1	AXX
81	08	14	17788	N14 E41	13	1000	3.5	22468	N16 E40	15	(AP)	3	H		1	AXX
81	08	15	17788	N14 E29	12	1500	3.5	22482	N15 E37	4	(AF)	3	H	10	3	BXO
81	08	16	17788	N14 E17	11	1300	3.0	22482	N16 E25	3	(AF)	3	B	20	1	AXX
81	08	16	17788	N14 E17	11	1300	3.0	22468	N17 E12	16	(AP)	3	B	10	8	BXO
81	08	16	17788	N14 E17	11	1300	3.0	22489	N12 E12	16	(AP)	3	B	10	8	BXO
81	08	17	17788	N14 E01	12	1300	3.0	22468	N15 W03	18	(AP)	3	H	10	4	BXO
81	08	17	17788	N14 E01	12	1300	3.0	22482	N17 E12	3	(AF)	3	H	10	2	BXO
81	08	18	17788	N15 W11	11	1300	3.5	22468	N15 W15	17	B	1				
81	08	18	17788	N15 W11	11	1300	3.5	22482	N16 W02	4	AF	1				
81	08	19	17788	N15 W24	12	1300	3.5	22482	N16 W14	3	(AF)	2				
81	08	19	17788	N15 W24	12	1300	3.5	22468	N15 W27	16	(AP)	2				
81	08	20	17788	N15 W36	10	1300	3.0									
81	08	21	17788	N15 W48	10	1300	2.5									
81	08	22	17788	N13 W64	12	1300	3.0	22511	N06 W60	9	(AP)	3	H		1	AXX
81	08	23	17788	N14 W73	7	500	2.5		N09 W68				L		2	BXO

HALE REGION 17790 CMP DATE 18.4

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	11	17790					22469	S14 E87	7	X	2	H	420	1	HHX
81	08	12	17790	S14 E75	6	1000	3.5	22469	S15 E75	7	(D)	4	H	820	12	EKI
81	08	13	17790	S14 E63	4	1300	3.5	22469	S15 E62	6	(BY)	5	B	1400	11	FKI
81	08	14	17790	S15 E48	6	3000	3.5	22469	S15 E50	5	(BY)	5	H	1630	28	FKC
81	08	15	17790	S15 E35	6	3000	3.5	22469	S15 E35	6	(D)	5	H	1390	33	FKC
81	08	16	17790	S15 E24	4	3000	3.5	22469	S15 E22	6	(D)	5	B	1010	24	FKC
81	08	16	17790	S15 E24	4	3000	3.5	22490	S08 E15	13	(AP)	2	L		1	AXX
81	08	17	17790	S14 E08	5	3000	3.5	22469	S16 E08	7	(BY)	5	H	1120	41	FKI
81	08	17	17790	S14 E08	5	3000	3.5	22490	S07 E02	13	(AP)	3				
81	08	18	17790	S15 W05	5	3000	3.5	22469	S16 W05	7	(D)	5	H	1020	32	FKI
81	08	18	17790	S15 W05	5	3000	3.5	22501	S08 W03	5	(AF)	3				
81	08	19	17790	S15 W18	6	3000	3.5	22469	S16 W18	7	(D)	5	H	880	50	FKI
81	08	19	17790	S15 W18	6	3000	3.5	22502	S06 W23	12	AP	2	H	10	2	AXX
81	08	20	17790	S15 W31	5	3200	3.5	22469	S16 W31	6	(D)	5	H	890	43	FKI
81	08	21	17790	S15 W43	5	3200	3.5	22469	S15 W44	6	(B)	5	H	470	25	FKI
81	08	22	17790	S15 W59	7	2900	3.5	22469	S15 W56	5	(B)	4	H	520	15	EKI
81	08	23	17790	S15 W65	359	1000	3.0	22469	S15 W69	5	(B)	4	H	370	2	EAO
81	08	24	17790	S15 W75	356	1000	2.5	22469	S13 W77	359	B	2	H	200	3	DAO

REGIONS OF SOLAR ACTIVITY

AUGUST 1981

HALE REGION 17792 CMP DATE 19.2 RETURN OF TRAILING PORTION OF 17749 ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
81	08	13	17792	N15	E70	357	500	3.0
81	08	14	17792	N15	E56	358	700	3.0
81	08	15	17792	N14	E46	355	700	3.0
81	08	16	17792	N14	E33	355	700	2.5
81	08	17	17792	N15	E19	354	600	3.5
81	08	18	17792	N15	E06	354	600	3.5
81	08	19	17792	N15	W07	355	500	3.0
81	08	20	17792	N16	W18	352	500	3.0
81	08	21	17792	N17	W31	353	200	3.0
81	08	22	17792	N16	W48	356	200	3.0
81	08	23	17792	N16	W60	354	200	2.5
81	08	24	17792	N16	W74	355	200	2.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
22480	N15	E73	355	(B)	3	P	10	3	BXO
22480	N16	E63	352	(AF)	3	H	10	3	BXO
	N15	E36				H	10	3	BXO
22492	N16	E35	353	(AF)	3	R	30	3	CRO
22492	N15	E22	353	(AF)	3	R	10	3	BXO
22503	N16	W06	355	X	1				

HALE REGION 17793 CMP DATE 19.8 RETURN OF REGIONS 17753 AND 17757 ROTATIONS 4 AND 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
81	08	13	17793	S14	E75	352	200	2.0
81	08	14	17793	S17	E65	349	300	3.0
81	08	15	17793	S17	E49	352	300	3.0
81	08	16	17793	S18	E42	346	400	3.0
81	08	17	17793	S19	E31	342	500	3.0
81	08	18	17793	S18	E25	335	600	3.0
81	08	19	17793	S18	E01	347	600	3.0
81	08	20	17793	S19	W08	342	600	3.0
81	08	21	17793	S19	W20	342	400	3.0
81	08	22	17793	S19	W37	345	400	2.5
81	08	23	17793	S21	W44	338	300	3.0
81	08	24	17793	S21	W59	340	300	2.5
81	08	25	17793	S19	W66	334	300	2.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S18	E67				R	1940	33	FKI
	S17	E55				M	870	27	FKC
	S15	E43				L	1450	59	FKI
22491	S15	E35	353	(AP)	3	L	1440	51	FKI
22491	S13	E22	353	(B)	3	B	10	3	BXO
22500	S16	E23	339	(AP)	2	R	10	2	BXO
22491	S15	W06	355	(B)	2	H	10	3	AXX
	S14	W05				H	30	8	BXO

HALE REGION 17794 CMP DATE 20.3 RETURN OF REGION 17751 ROTATION 4

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
81	08	14	17794	S07	E71	343	400	3.0
81	08	15	17794	S08	E59	342	500	3.5
81	08	16	17794	S07	E46	342	900	3.0
81	08	17	17794	S06	E34	339	900	3.5
81	08	18	17794	S07	E20	340	1200	3.5
81	08	18	17794	S07	E20	340	1200	3.5
81	08	19	17794	S08	E07	341	1400	3.5
81	08	20	17794	S07	W06	340	1400	3.0
81	08	21	17794	S09	W20	342	1400	3.5
81	08	22	17794	S09	W33	341	1400	3.0
81	08	23	17794	S08	W46	340	1400	3.0
81	08	24	17794	S08	W60	341	800	3.0
81	08	25	17794	S05	W73	341	800	2.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
22483	S07	E72	343	(B)	3	H	350	5	DAO
22483	S08	E59	342	(B)	4	H	140	8	DAO
22483	S07	E46	342	(B)	4	B	230	10	DAI
22483	S07	E33	342	(B)	4	B	160	12	DAO
22483	S08	E20	342	(B)	5	H	140	18	DAO
22499	S14	E18	344	(AP)	2	R	10	2	BXO
22483	S07	E07	342	(BF)	5	H	270	32	DAI
22483	S06	W06	341	(BF)	4	H	170	18	DSI
22483	S06	W19	341	(B)	4	H	60	10	DSO
22483	S08	W34	343	(AP)	4	H	30	5	CSO

HALE REGION 17799 CMP DATE 21.1 RETURN OF REGION 17755 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
81	08	16	17799					
81	08	17	17799	S05	E45	328	600	3.0
81	08	17	17799	S05	E45	328	600	3.0
81	08	18	17799	S05	E30	330	400	3.0
81	08	19	17799	S05	E26	322	600	3.0
81	08	20	17799	S04	E05	329	500	3.0
81	08	21	17799	S05	W09	331	500	3.0
81	08	22	17799	S05	W24	332	500	3.0
81	08	23	17799	S06	W37	331	500	3.0
81	08	24	17799	S06	W50	331	400	3.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
22494	S06	E60	328	(B)	3	B	10	3	BXO
22496	S11	E41	334	(AP)	3	H	210	9	DAO
22494	S05	E46	329	(BY)	4	H	60	8	CAO
22494	S05	E33	329	(B)	4	H	70	10	CAO
22494	S06	E19	330	(B)	4	H	60	7	DSO
22494	S06	E06	329	(B)	4	H	60	4	DAO
22494	S06	W07	329	(B)	3	H	10	2	AXX
	S02	W16				H	130	1	HSX
	S02	W30				H	140	3	CHO
	S03	W42				H	110	1	HSX

CONT

REGIONS OF SOLAR ACTIVITY

AUGUST 1981

HALE REGION 17799 (CONT) CMP DATE 21.1 RETURN OF REGION 17755 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	25	17799	S05	W65	333	400	2.5		S05	W58				H	200	4	CSO
81	08	26	17799	S04	W72	328	300	2.5		S03	W70				H	100	1	HSX

HALE REGION 17795 CMP DATE 21.5

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	15	17795	S04	E76	325	400	3.0	22485	S02	E76	325	(AP)	3	H	120	1	HAX
81	08	16	17795	S04	E65	323	400	3.0	22485	S02	E63	325	(AP)	4	B	220	1	HSX
81	08	17	17795	S01	E50	323	400	3.5	22485	S02	E49	326	(BP)	5	H	110	3	CSO
81	08	18	17795	S01	E36	324	700	3.5	22485	S02	E36	326	(AP)	5	H	120	2	HAX
81	08	19	17795	S02	E23	325	600	3.5	22485	S03	E23	326	(BP)	5	H	180	2	HSX
81	08	20	17795	S02	E10	324	600	3.5	22485	S03	E10	325	(AP)	5	H	250	14	CKO
81	08	21	17795	S03	W03	325	700	3.5	22485	S03	W04	326	(AP)	5	H	150	3	CKO
81	08	22	17795	S03	W17	325	700	3.0	22485	S03	W17	326	(AP)	5	H	130	1	HSX
81	08	23	17795	S03	W30	324	600	3.0	22485	S03	W30	326	(AP)	5	H	140	3	CHO
81	08	24	17795	S03	W43	324	400	3.0	22485	S02	W44	326	(AP)	5	H	110	1	HSX
81	08	25	17795	N01	W55	323	100	2.5	22485	S03	W57	326	(AP)	4	H	200	4	CSO
81	08	26	17795	N01	W66	322	100	2.5	22485	S02	W70	326	(AP)	4	H	100	1	HSX
81	08	27	17795						22485	S02	W80	323	AP	2	H	30	1	HSX

HALE REGION 17796 CMP DATE 21.6 NEW, IN LOCATIØN OF REGIØN 17756 ROTATIØN 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	15	17796	S17	E75	326	1000	3.0	22486	S17	E78	323	(AP)	3	H	150	4	CAO
81	08	16	17796	S17	E64	324	1000	3.0	22486	S17	E66	322	(B)	4	B	500	3	DHO
81	08	17	17796	S16	E49	324	1000	3.5	22486	S17	E51	324	(B)	4	H	290	6	DSO
81	08	18	17796	S16	E37	323	1200	3.5	22486	S17	E39	323	(B)	5	H	370	14	DSO
81	08	19	17796	S16	E22	326	1300	3.5	22486	S17	E25	324	(B)	5	H	660	20	EKI
81	08	20	17796	S17	E12	322	1300	3.5	22486	S17	E11	324	(B)	5	H	430	12	EKI
81	08	21	17796	S17	W01	323	1300	3.5	22486	S17	W04	326	(B)	5	H	390	8	EKO
81	08	22	17796	S17	W12	320	1300	3.5	22486	S17	W14	323	(BP)	5	H	270	10	CHO
81	08	23	17796	S18	W26	320	1200	3.0	22486	S17	W27	323	(BY)	5	H	290	11	CHO
81	08	24	17796	S19	W40	321	1300	3.0	22486	S17	W39	321	(BP)	5	H	270	10	EHO
81	08	25	17796	S19	W51	319	800	3.0	22486	S17	W54	323	(BP)	4	H	440	9	CHO
81	08	26	17796	S19	W61	317	800	3.0	22486	S17	W69	325	(AP)	4	H	400	4	CAO
81	08	27	17796	S19	W71	314	500	3.0	22486	S17	W79	322	AP	2	H	70	1	HAX

HALE REGION 17800 CMP DATE 21.8

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	16	17800						22493	S05	E69	319	(AP)	3	B	220	1	HSX
81	08	17	17800	S06	E56	317	200	3.0	22493	S06	E56	319	(B)	3	H	60	8	CAO
81	08	18	17800	S06	E41	319	500	3.0	22493	S07	E42	320	(B)	3	H	70	10	CAO
81	08	19	17800	S07	E29	319	400	3.0	22493	S07	E29	320	(B)	4	H	50	7	CRO
81	08	20	17800	S07	E16	318	300	3.0	22493	S10	E19	316	(AF)	4	H	30	4	CSO
81	08	21	17800	S07	E01	321	200	3.0	22493	S09	E05	317	(AF)	4	H	10	2	CRO
81	08	22	17800	S08	W12	320	100	2.5	22493	S10	W08	317	(AF)	3	H		1	AXX
81	08	23	17800	S09	W24	318	100	2.5										
81	08	24	17800	S09	W39	320	100	2.5										
81	08	25	17800	S08	W52	320	100	2.0	22516	S07	W50	319	(AP)	3	H	10	2	AXX

REGIONS OF SOLAR ACTIVITY

AUGUST 1981

HALE REGION 17798 CMP DATE 22.6

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	16	17798					22495	N14 E85	303	X	2	R	10	1	AXX
81	08	17	17798	N13 E68	305	400	2.5	22495	N13 E67	308	(AP)	3	B		1	AXX
81	08	18	17798	N13 E54	306	400	3.0	22495	N16 E57	305	(B)	3	H	10	2	BXO
81	08	19	17798	N12 E41	307	400	3.0	22504	N10 E41	308	(B)	3	H	40	4	CSO
81	08	19	17798	N12 E41	307	400	3.0	22495	N17 E46	303	B	1				
81	08	20	17798	N11 E38	296	400	3.0	22504	N10 E28	307	(B)	4	H	110	19	CAO
81	08	20	17798	N11 E38	296	400	3.0	22495	N17 E32	303	(AF)	3	H	20	4	HRX
81	08	21	17798	N11 E14	308	600	3.5	22495	N17 E18	304	(AF)	4	B	10	2	BXO
81	08	21	17798	N11 E14	308	600	3.5	22504	N10 E15	307	(B)	4	H	50	10	DSO
81	08	22	17798	N10 W01	309	600	3.0	22504	N10 E01	308	(B)	4	H	30	14	BXO
81	08	23	17798	N11 W13	307	600	3.0	22504	N10 W13	309	(B)	4	H	50	19	BXO
81	08	24	17798	N11 W28	309	600	3.0	22504	N12 W25	307	(B)	3	H	50	10	BXO
81	08	25	17798	N13 W40	308	700	3.0	22504	N11 W41	310	(AP)	4	H	50	4	CAO
81	08	26	17798	N12 W53	309	1000	3.5	22504	N11 W53	309	(B)	3	H	100	14	BXI
81	08	27	17798	N12 W65	308	1000	3.0	22504	N11 W65	308	(B)	3	H	50	9	DAO
81	08	28	17798	N12 W77	306	500	3.0	22504	N11 W79	309	X	2	H		1	AXX

HALE REGION 17802 CMP DATE 23.0

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	19	17802	N18 E45	303	300	2.5									
81	08	20	17802	N15 E32	302	300	3.0		N17 E32				H	20	4	HRX
81	08	21	17802	N17 E20	302	300	3.0		N18 E19				B	10	2	BXO
81	08	22	17802	N15 E04	304	300	3.0		N11 E01				H	30	14	BXO
81	08	23	17802	N16 W10	304	300	2.5		N11 W13				H	50	19	BXO
81	08	24	17802	N17 W22	303	300	2.5		N12 W17				L	30	16	BXO
81	08	25	17802	N22 W34	302	100	2.0									
81	08	26	17802	N21 W47	303	100	2.5									

HALE REGION 17803 CMP DATE 24.0

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	19	17803	S20 E52	296	100	2.5									
81	08	20	17803	S19 E42	292	100	3.0									
81	08	21	17803	S19 E28	294	100	3.0									
81	08	22	17803	S19 E16	292	100	3.0									
81	08	23	17803	S20 E03	291	100	3.0									
81	08	24	17803	S20 W11	292	100	3.0									
81	08	25	17803	S20 W25	293	100	3.0	22517	S17 W27	296	(AP)	3				
81	08	26	17803	S19 W38	294	100	2.5		S16 W40				B	10	3	BXO
81	08	27	17803	S19 W47	290	100	3.0									
81	08	28	17803	S19 W62	291	100	3.0									

HALE REGION 17801 CMP DATE 24.1 RETURN OF REGION 17760 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	17	17801	S07 E79	294	1000	3.0	22497	S07 E80	295	(AP)	3	H	10	2	AXX
81	08	18	17801	S09 E67	293	3000	3.5	22497	S09 E70	292	(B)	3	H	260	13	DSO
81	08	19	17801	S10 E58	290	3000	3.5	22505	S12 E68	281	(BY)	4	H	440	26	FAI
81	08	19	17801	S10 E58	290	3000	3.5	22497	S09 E55	294	(BY)	4	H	440	26	FAI
81	08	20	17801	S11 E46	288	5000	3.5	22497	S12 E46	289	(B)	4	H	480	36	FAI
81	08	21	17801	S10 E31	291	5000	3.5	22497	S10 E34	288	(BY)	4	H	300	47	FAO
81	08	22	17801	S08 E18	290	5000	3.5	22497	S10 E21	288	(BY)	4	H	210	37	FAO
81	08	22	17801	S08 E18	290	5000	3.5	22512	S03 E13	296	(B)	4	H	10	6	BXO
81	08	23	17801	S10 E05	289	5000	3.5	22512	S03 W01	297	(B)	3	H	20	4	CRO
81	08	23	17801	S10 E05	289	5000	3.5	22497	S10 E10	286	(B)	4	H	190	46	FAI
81	08	24	17801	S10 W05	286	5000	3.5	22497	S11 W01	283	(BY)	4	H	190	30	CAI
81	08	25	17801	S10 W22	290	5000	3.5	22497	S11 W14	283	(B)	4	H	380	50	CAI
81	08	26	17801	S09 W31	287	5000	3.5	22519	S03 W40	296	(B)	4	H	100	10	DSO

CONT

REGIONS OF SOLAR ACTIVITY

AUGUST 1981

HALE REGION 17801 (CONT) CMP DATE 24.1 RETURN OF REGION 17760 ROTATION 3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	26	17801	S09	W31	287	5000	3.5	22497	S10	W28	284	(B)	4	H	590	42	FKI
81	08	27	17801	S10	W43	286	5000	3.5	22519	S03	W52	295	(B)	4	H	10	3	AXX
81	08	27	17801	S10	W43	286	5000	3.5	22497	S10	W41	284	(D)	4	H	460	21	DAI
81	08	28	17801	S11	W56	285	5000	3.5	22497	S10	W55	285	(B)	3	H	350	20	DKI
81	08	28	17801	S11	W56	285	5000	3.5	22519	S03	W68	298	(B)	3	H		1	AXX
81	08	29	17801	S12	W66	282	5000	3.0	22497	S10	W68	285	(B)	4	H	590	9	DKI
81	08	30	17801	S12	W75	277	1100	3.0	22497	S10	W74	278	(BP)	2	H	230	7	DAO
81	08	31	17801						22497	S10	W85	276	AP	2	H	60	1	HHX

HALE REGION 17804 CMP DATE 25.1

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	19	17804	S25	E63	285	200	2.5										
81	08	20	17804	S25	E56	278	700	3.0										
81	08	21	17804	S25	E44	278	200	3.0										
81	08	22	17804	S25	E29	279	200	3.0										
81	08	23	17804	S26	E16	278	200	3.0		S23	E24				L		1	AXX
81	08	24	17804	S26	E04	277	200	3.0										
81	08	25	17804	S26	W10	278	200	3.0										

HALE REGION 17806 CMP DATE 25.2 RETURN OF REGIÓN 17763 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	21	17806	N13	E49	273	300	3.0	22508	N12	E50	272	(B)	4	B	10	3	BXO
81	08	22	17806	N13	E35	273	300	3.0	22508	N12	E36	273	(B)	4	H	50	9	DSO
81	08	23	17806	N13	E21	273	300	3.0	22508	N12	E22	274	(B)	4	H	60	10	DAO
81	08	24	17806	N12	E06	275	400	3.0	22508	N11	E07	275	(BP)	4	H	80	19	CSO
81	08	25	17806	N12	W08	276	600	3.5	22508	N12	W07	276	(B)	4	H	260	23	EAI
81	08	26	17806	N12	W20	276	1500	3.0	22508	N12	W20	276	(B)	4	H	260	34	ESI
81	08	27	17806	N12	W33	276	1300	3.5	22508	N12	W35	278	(B)	3	H	230	31	EAI
81	08	28	17806	N12	W48	277	1300	3.5	22508	N12	W48	278	(B)	4	H	280	21	FAI
81	08	29	17806	N12	W58	274	1300	3.0	22508	N12	W60	277	(B)	3	H	210	11	FSO
81	08	30	17806	N13	W70	272	1300	3.0	22508	N10	W76	280	(B)	3	H	150	4	CSO
81	08	31	17806	N14	W79	268	200	2.5										

HALE REGION 17805 CMP DATE 25.8 RETURN REAR HALF 17764+FRØNT HALF 17767 ROTATIØN 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	20	17805	S07	E74	268	300	3.0	22507	S08	E70	265	(B)	3	H	70	5	CSO
81	08	21	17805	S07	E56	266	600	3.0	22507	S08	E57	265	(B)	4	B	40	10	BXO
81	08	22	17805	S07	E44	264	600	3.5	22507	S08	E44	265	(B)	4	H	100	20	EAO
81	08	23	17805	S07	E29	265	600	3.0	22507	S08	E30	266	(B)	4	H	100	10	EAO
81	08	24	17805	S08	E15	266	600	3.0	22507	S09	E12	270	(B)	4	B	160	20	EAO
81	08	25	17805	S08	E01	267	600	3.5	22507	S09	E03	266	(B)	4	H	180	18	CKO
81	08	26	17805	S09	W11	267	800	3.0	22507	S09	W13	269	(B)	4	H	210	18	EAO
81	08	27	17805	S09	W24	267	800	3.5	22507	S09	W28	271	(B)	4	H	130	9	DSO
81	08	28	17805	S09	W39	268	800	3.5	22507	S09	W39	269	(BP)	5	H	100	5	DAO
81	08	29	17805	S11	W51	267	800	3.0	22507	S09	W53	270	(BP)	4	H	150	4	CSO
81	08	30	17805	S10	W62	264	800	2.5		S10	W67				B	110	2	CSO

REGIONS OF SOLAR ACTIVITY

AUGUST 1981

HALE REGION 17808 CMP DATE 27.1 RETURN ØF REAR HALF ØF REGIØN 17767 RØTATIØN 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	21	17808	S05	E73	249	300	3.0	22510	S06	E75	247	(B)	3	B	50	2	D
81	08	22	17808	S05	E60	248	700	3.5	22510	S05	E60	249	(AP)	4	H	30	4	DSO
81	08	23	17808	S05	E47	247	900	3.0	22510	S05	E46	250	(AP)	3	H	30	7	BXO
81	08	24	17808	S06	E34	247	900	3.0		S03	E33				H	20	5	BXO
81	08	25	17808	S05	E18	250	900	3.5	22518	S05	E19	250	(AP)	2	H	10	3	BXO
81	08	26	17808	S05	E06	250	800	3.0	22518	S05	E07	249	(AP)	4	H	20	5	BXO
81	08	27	17808	S05	W08	251	700	3.0	22518	S05	W08	251	(B)	2	H	20	9	BXO
81	08	28	17808	S05	W22	251	700	3.5	22518	S05	W19	249	(B)	3	H	30	5	CSO
81	08	29	17808	S05	W35	251	700	3.0	22518	S05	W33	250	(AF)	3	H	10	1	AXX
81	08	30	17808	S05	W48	250	700	3.0	22518	S07	W48	252	(B)	3	H	20	5	BXO
81	08	30	17808	S05	W48	250	700	3.0	22526	S07	W35	239	(B)	3	H	10	2	BXO
81	08	31	17808	S05	W61	250	700	3.0	22518	S07	W61	252	(B)	4	H	200	5	DAO
81	08	31	17808	S05	W61	250	700	3.0	22526	S07	W51	242	(B)	3	H	20	3	BXO
81	09	1	17808	S05	W71	247	700	3.0	22518	S07	W74	252	(B)	4				

HALE REGION 17810 CMP DATE 27.8

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	22	17810	S24	E70	238	100	3.0										
81	08	23	17810	S23	E54	240	300	2.5	22514	S22	E53	243	(AP)	3	H		1	AXX
81	08	24	17810	S23	E39	242	100	3.0										
81	08	25	17810	S24	E27	241	100	2.5										
81	08	26	17810	S24	E15	241	100	3.0										

HALE REGION 17807 CMP DATE 27.9

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	21	17807	N23	E77	245	800	3.0	22509	N21	E75	247	(AP)	4	H	200	4	DAO
81	08	22	17807	N24	E66	242	1000	3.0	22509	N21	E62	247	(AP)	4	H	130	8	DAO
81	08	23	17807	N24	E51	243	2000	3.5	22509	N21	E49	247	(AP)	4	H	200	12	DAI
81	08	24	17807	N24	E39	242	2000	3.0	22509	N20	E35	247	(BP)	4	H	120	16	DSI
81	08	25	17807	N24	E29	239	2000	3.5	22509	N21	E23	246	(BP)	4	H	170	16	DSI
81	08	26	17807	N24	E17	239	2200	3.5	22509	N21	E11	245	(BP)	4	H	200	25	DSO
81	08	27	17807	N24	E03	240	2200	3.5	22509	N21	W01	244	(BP)	4	H	80	15	DSO
81	08	28	17807	N24	W10	239	2500	3.5	22509	N21	W14	244	(B)	4	H	60	12	DSO
81	08	29	17807	N24	W21	237	2000	3.5	22509	N21	W26	243	(D)	4	H	60	8	CAO
81	08	30	17807	N24	W35	237	2000	3.5	22509	N22	W40	244	(AP)	4	H	30	4	CAO
81	08	30	17807	N24	W35	237	2000	3.5	22527	N31	W29	233	(AF)	2				
81	08	31	17807	N25	W48	237	2000	3.5	22509	N21	W54	245	(AP)	3	H	30	2	CSO
81	09	1	17807	N25	W61	237	2000	3.0	22536	N30	W51	229	(AF)	3				
81	09	2	17807	N31	W67	229	800	3.0										
81	09	3	17807	N31	W79	227	200	3.0										

HALE REGION 17809 CMP DATE 29.0 RETURN OF REGION 17769 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	22	17809	N17	E80	228	900	3.0	22513	N17	E80	229	(AP)	4	H	10	3	AXX
81	08	23	17809	N16	E70	224	3000	3.5	22513	N16	E74	222	(B)	4	H	520	13	EAI
81	08	24	17809	N16	E55	226	3000	3.5	22513	N15	E57	225	(B)	4	H	690	25	FKI
81	08	25	17809	N16	E43	225	3000	3.5	22513	N16	E46	223	(D)	4	H	750	54	FKI
81	08	26	17809	N16	E31	225	2000	3.5	22513	N16	E32	224	(BY)	4	H	700	60	FAI
81	08	27	17809	N16	E18	225	3000	3.5	22513	N16	E20	223	(B)	4	H	160	33	FAI
81	08	28	17809	N16	E04	225	3000	3.5	22513	N19	E09	221	(B)	4	H	220	43	FAO
81	08	29	17809	N16	W10	226	3000	3.0	22513	N19	W05	222	(B)	3	H	210	51	FST
81	08	30	17809	N18	W22	224	3000	3.5	22513	N15	W18	222	(B)	5	H	210	43	FSI
81	08	31	17809	N17	W37	226	3000	3.5	22513	N17	W32	223	(BY)	4	H	260	27	FSI
81	09	1	17809	N16	W51	227	3000	3.5	22513	N17	W46	224	(B)	4				
81	09	2	17809	N17	W63	225	3000	3.5	22513	N17	W63	227	(BP)	4				
81	09	3	17809	N17	W74	222	2500	3.5	22513	N15	W66	217	(B)	3				

REGIONS OF SOLAR ACTIVITY

AUGUST 1981

HALE REGION 17815 CMP DATE 29.7

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	26	17815	S12 E42	214	200	3.0									
81	08	27	17815	S12 E28	215	200	2.5		S12 E27				H		1	AXX
81	08	28	17815	S12 E13	216	200	3.0		S11 E13				B	30	2	BXO
81	08	29	17815	S13 E00	216	200	3.0		S12 E01				H	10	3	AXX
81	08	30	17815	S13 W13	215	200	3.0		S08 W18				H		1	AXX
81	08	31	17815	S12 W29	218	200	3.0		S10 W29				B	10	2	BXO
81	09	1	17815	S11 W42	218	300	3.0	22537	S12 W40	218	(B)	4				
81	09	2	17815	S12 W57	219	700	3.0	22537	S12 W55	219	(B)	4				
81	09	3	17815	S12 W70	218	300	3.0	22537	S12 W67	218	(B)	2				

HALE REGION 17811 CMP DATE 29.8

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	23	17811	N24 E75	219	200	3.0									
81	08	24	17811	N25 E64	217	300	3.0									
81	08	25	17811	N25 E51	217	300	2.0									
81	08	26	17811	N25 E41	215	300	3.0									
81	08	27	17811	N25 E27	216	300	3.0									
81	08	28	17811	N25 E15	214	400	3.0									
81	08	29	17811	N25 E01	215	400	3.5									
81	08	30	17811	N25 W11	213	400	3.0	22528	N27 W10	214	(AF)	2				
81	08	31	17811	N26 W25	214	400	3.0	22528	N25 W16	207	(AF)	2				
81	09	1	17811	N26 W38	214	400	3.0	22528	N25 W35	213	(AF)	2				
81	09	2	17811	N27 W50	212	400	3.0									
81	09	3	17811	N26 W64	212	400	3.0									

HALE REGION 17812 CMP DATE 30.0 RETURN OF EXTREME TRAILING EDGE 17769 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	24	17812	N18 E70	211	1200	3.5		N15 E77				H	620	3	DKC
81	08	25	17812	N16 E56	212	1000	3.0		N17 E47				H	750	54	FKI
81	08	26	17812	N16 E44	212	800	3.0									
81	08	27	17812	N16 E30	213	800	3.5									
81	08	28	17812	N16 E15	214	600	3.5									
81	08	29	17812	N16 E04	212	600	3.5									
81	08	30	17812	N16 W11	213	700	3.0									
81	08	31	17812	N17 W25	214	800	3.0									
81	09	1	17812	N17 W39	215	1000	3.0									
81	09	2	17812	N17 W52	214	1000	3.0									
81	09	3	17812	N17 W66	214	1600	3.0									
81	09	4	17812	N18 W76	210	300	2.5									

HALE REGION 17813 CMP DATE 30.8

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	24	17813					22515	N15 E70	212	(AP)	4	H	620	3	DKC
81	08	25	17813	N15 E69	199	600	3.0	22515	N16 E65	204	(BP)	4	H	360	9	DSO
81	08	26	17813	N16 E56	200	600	3.5	22515	N16 E53	203	(BP)	5	H	320	18	CKI
81	08	27	17813	N17 E41	202	600	3.5	22515	N16 E38	205	(BP)	4	H	230	9	DAO
81	08	28	17813	N16 E28	201	800	3.5	22515	N16 E25	205	(BP)	5	H	250	12	DSO
81	08	29	17813	N16 E15	201	800	3.5	22515	N16 E11	206	(BP)	4	H	290	9	DAO
81	08	30	17813	N16 E00	202	1000	3.5	22515	N15 W03	207	(D)	5	H	300	19	DSI
81	08	31	17813	N16 W14	203	1300	3.5	22515	N15 W15	206	(BY)	5	H	350	23	EHI
81	09	1	17813	N16 W27	203	1300	3.0	22515	N15 W29	207	(BY)	5				
81	09	2	17813	N16 W40	202	1300	3.5	22515	N15 W43	207	(BY)	4				
81	09	3	17813	N16 W54	202	1400	3.0	22515	N16 W57	208	(BP)	4				
81	09	4	17813	N16 W66	200	1300	3.0	22515	N16 W69	206	(BP)	4				
81	09	5	17813	N18 W78	200	1100	3.0	22515	N17 W70	194	AP	3				

REGIONS OF SOLAR ACTIVITY

AUGUST 1981

HALE REGION 17816 CMP DATE 31.5

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	26	17816	S09 E62	194	100	2.5									
81	08	27	17816	S10 E48	195	100	3.0		S11 E51				H		1	AXX
81	08	28	17816	S10 E35	194	100	3.0		S10 E44				M		1	AXX
81	08	29	17816	S11 E25	191	200	3.0	22522	S10 E25	192	(AP)	3	B	5050	4	CAO
81	08	30	17816	S10 E11	191	300	3.0	22522	S10 E12	192	(BP)	4	H	20	5	CSO
81	08	31	17816	S09 W03	192	300	3.0	22522	S09 W01	192	(B)	4	B	10	2	BXO
81	09	1	17816	S09 W16	192	300	3.0	22522	S09 W16	194	(AP)	4				
81	09	2	17816	S10 W30	192	300	3.0	22522	S09 W31	195	(AP)	4				
81	09	3	17816	S08 W44	192	200	3.0	22522	S09 W45	196	(AP)	3				
81	09	4	17816	S08 W60	194	200	2.5	22522	S09 W59	196	(AP)	3				
81	09	5	17816	S09 W68	190	100	2.0	22522	S08 W73	197	(AP)	2				

HALE REGION 17814 CMP DATE 31.6

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	25	17814	S26 E74	194	200	2.0									
81	08	26	17814	S27 E60	196	100	3.0									
81	08	27	17814	S27 E50	193	100	3.0									
81	08	28	17814	S26 E35	194	100	3.0									
81	08	29	17814	S25 E23	193	200	3.0	22523	S22 E24	193	(AP)	3	H	10	2	BXO
81	08	30	17814	S25 E10	192	200	3.0	22523	S22 E10	194	(AP)	3	H	10	1	AXX
81	08	31	17814	S25 W02	191	300	3.0									
81	09	1	17814	S25 W16	192	200	3.0									

NOTE: There are Calcium plage spectroheliograms and sunspot observations from Mt. Wilson for every day of August 1981.

CONTIGUOUS PLAGES FOR AUGUST 1981: None.

DAILY CALCIUM PLAGE INDEX

AUGUST 1981

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
81	8	1	22.8	81	8	11	28.6	81	8	21	45.5
81	8	2	15.6	81	8	12	27.8	81	8	22	43.5
81	8	3	14.2	81	8	13	25.2	81	8	23	43.1
81	8	4	14.3	81	8	14	28.4	81	8	24	43.6
81	8	5	17.5	81	8	15	25.4	81	8	25	43.9
81	8	6	21.3	81	8	16	25.7	81	8	26	44.1
81	8	7	23.4	81	8	17	30.4	81	8	27	46.1
81	8	8	23.4	81	8	18	37.8	81	8	28	44.8
81	8	9	27.9	81	8	19	39.8	81	8	29	39.5
81	8	10	30.0	81	8	20	45.1	81	8	30	38.6
								81	8	31	41.5

* NO OBSERVATIONS

COSMIC RAY INDICES
(Neutron Monitors)

	June 1981		July 1981			
	ALERT	DEEP RIVER	ALERT	DEEP RIVER	CLIMAX	HUANCAYO
Day	Average (cts/h)/100	Average (cts/h)/300	Average (cts/h)/100	Average (cts/h)/300	Average (cts/h)/100	Average (cts/h)/100
1	6479.3	6150.3	6427.1	6090.1	3616.3	1700.2
2	6486.0	6166.3	6526.5	6124.9	3642.6	1708.6(20)
3	6488.2	6158.2	6563.4	6166.1	3656.1(20)	1721.4
4	6558.5	6207.0	6579.5	6193.8	3691.3(23)	1726.3
5	6586.8	6236.3	6617.0	6230.2	3705.1(21)	1728.8
6	6623.9	6264.1	6676.0	6279.1	3748.5	1732.1
7	6556.5	6221.1	6692.8	6300.6	3771.2	1734.2
8	6492.5	6147.4	6684.1	6301.0	3771.9	1731.1
9	6533.2	6166.0	6670.0	6295.8	3770.3	1732.4(19)
10	6552.5	6196.9	6691.0	6313.6	3760.6	1732.7
11	6549.1	6206.2	6709.5	6319.4	3763.5	1733.6
12	6546.5	6201.0	6710.3	6321.3	3761.8(20)	1732.0
13	6561.5	6203.8	6701.5	6315.1	---	1736.6
14	6597.5	6228.6	6709.8	6328.4	3759.3(19)	1732.0
15	6598.0	6205.1	6716.6	6350.4	3765.3	1732.3
16	6602.7	6199.0	6703.1	6326.2	3757.0	1732.3(19)
17	6531.0	6124.7	6695.6	6318.8	3763.9(20)	1730.3
18	6509.1	6146.0	6644.5	6275.9	3747.0(2)	1733.3
19	6533.6	6170.2	6658.5	6292.8	3749.4(21)	1732.0
20	6575.8	6219.4	6666.5(18)	6288.8	3740.2	1730.0
21	6519.2	6194.3	6685.4	6304.3	3750.3	1734.5(22)
22	6477.0	6124.7	6676.3	6331.7	3760.9	1738.0
23	6526.3	6188.3	6566.8	6240.8	3717.5	1716.6(19)
24	6593.8	6218.3	6511.1	6159.7	3652.1	1699.3
25	6642.1	6287.0	6396.6	6052.3	3593.5	1698.0
26	6616.8	6287.0	6186.9	5807.1	3463.4(20)	1665.3
27	6511.7	6188.5	6313.0	5958.6	3526.6(16)	1686.3
28	6476.4	6112.0	6419.7	6041.3	3611.3(4)	1704.9
29	6473.3	6120.5	6459.7	6083.3	3611.6	1707.7
30	6464.6	6068.5	6519.4	6146.0	3664.5	1714.7(19)
31			6545.6	6183.4	3695.3	1723.8
MEAN	6542.2	6186.9	6591.1	6217.5	3699.6	1721.3

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

COSMIC RAY INDICES
(Neutron Monitors)

AUGUST 1981

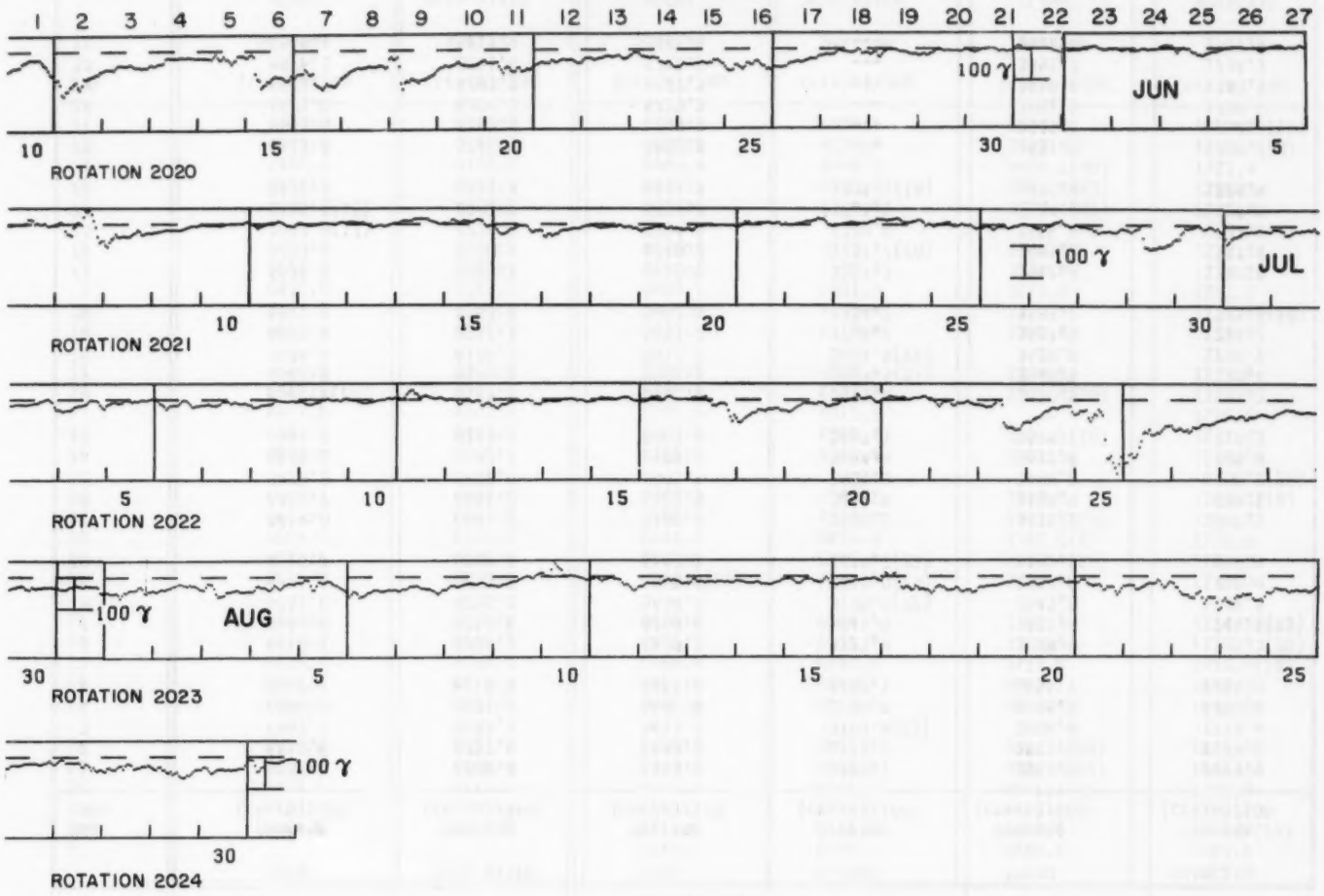
Aug 1981	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/100	HUANCAYO Average (cts/h)/100
1	6580.8	6209.8	5643.4	3720.7	3550.2	1729.9
2	6612.5	6217.6	5648.3	3723.2	3547.8	1729.6
3	6567.7	6182.1	5619.3	3707.8(21)	3536.8	1718.4
4	6590.0	6191.6	5627.9	3700.9	3546.9	1720.6
5	6612.1	6210.0	5651.6	3708.1	3551.7	1724.0
6	6613.1	6226.3	5670.3	3723.8	3548.9	1731.3(20)
7	6644.8	6258.5	5706.2	3741.0	3551.4	1744.3(20)
8	6651.8	6255.2	5694.0	3739.0(22)	3543.5	1728.7
9	6671.3	6259.3	5696.6	3747.0(20)	3544.8	1730.8
10	6516.7	6089.6	5547.1	3619.7(23)	3492.1	1696.9
11	6419.0	6041.2	5488.3	3592.2	3471.2	1692.5
12	6445.7	6065.0	5522.5	3612.8	3489.9	1699.5
13	6478.1	6092.0	5541.9	3631.3	3498.2	1700.3(20)
14	6525.5	6143.7	5582.7	3654.9	3512.6	1709.8
15	6557.0	6149.3	5603.5	3667.1	3529.1	1716.3
16	6577.4(20)	6179.5	5651.9	3689.0	3536.8	1721.3
17	6554.3	6199.0	5631.5	3697.5(21)	3540.5	1720.4
18	6524.4	6185.3	5613.3	3691.5(22)	3528.2	1720.2
19	6601.4	6217.7	5651.7	3702.2	3527.8	1724.7
20	6621.5	6253.5	5687.4	3734.2	3535.2	1725.9(18)
21	6678.2	6282.5	5718.0	3757.3	3542.4	1732.5
22	6703.0	6330.6	5740.7	3797.7(20)	3559.0	1737.4
23	6644.9(17)	6270.6	5704.5	3770.0	3555.4	1737.6
24	6585.4(19)	6201.0	5638.7	3713.1	3536.0	1724.8
25	6577.4	6213.4	5634.4	3705.1(16)	3524.4	1726.9
26	6619.7	6246.0	5660.8	---	3531.8	1728.7
27	6667.0	6280.0	5704.3	---	3545.1	1736.4(19)
28	6691.0	6304.3	5729.2	---	3551.5	1738.8
29	6656.5	6293.2	5727.3	---	3555.6	1740.9
30	6676.3	6251.6	5716.5	---	3551.7	1734.3
31	6648.1	6217.7	5681.6	---	3532.0	1727.7
MEAN	6597.2	6210.2	5649.5	3701.9	3534.5	1724.2

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

AUGUST 1981

(Time-UT)

(Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-48	-48	-52	-51	-52	-49	-55	-65	-55	-48	-50	-44	-41	-41	-41	-39	-33	-31	-37	-50	-51	-45	-44	-41
2	-45	-47	-42	-38	-39	-40	-37	-35	-33	-29	-28	-25	-22	-23	-26	-27	-29	-24	-28	-28	-30	-34	-38	-39
3	-41	-31	-21	-21	-24	-36	-52	-62	-60	-59	-57	-48	-47	-47	-44	-44	-41	-43	-47	-46	-47	-45	-45	-45
4	-46	-40	-31	-28	-33	-34	-33	-37	-41	-41	-35	-26	-30	-36	-38	-33	-26	-25	-21	-21	-23	-23	-18	-18
5	-18	-17	-11	-10	-12	-28	-41	-40	-28	-16	-17	-21	-18	-14	-14	-17	-23	-26	-28	-33	-37	-40	-45	-52
6	-61	-54	-46	-48	-53	-64	-62	-61	-56	-50	-49	-46	-41	-41	-41	-45	-46	-45	-43	-40	-41	-42	-40	-40
7	-45	-44	-39	-38	-39	-36	-30	-30	-30	-28	-30	-35	-37	-36	-38	-38	-39	-43	-45	-50	-54	-49	-42	-40
8	-41	-36	-30	-28	-29	-33	-32	-30	-27	-25	-24	-23	-21	-21	-24	-25	-22	-19	-20	-22	-27	-29	-26	-28
9	-29	-31	-32	-29	-25	-25	-23	-20	-17	-15	-15	-13	-9	-7	-4	-1	1	-1	-5	-6	1	6	9	12
10	10	2	2	1	22	48	39	31	25	20	3	3	1	3	4	0	1	-1	-4	-5	-7	-11	-11	-9
11	-8	-7	-2	-5	-10	-14	-10	-9	-6	-3	-3	-8	-7	-9	-11	-20	-27	-25	-27	-34	-41	-44	-40	-33
12	-31	-32	-27	-21	-21	-22	-21	-22	-21	-21	-24	-18	-14	-12	-10	-13	-11	-12	-13	-16	-21	-23	-21	-20
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17	-4	11	6	0	1	8	10	-2	-18	-34	-38	-32	-32	-37	-43	-40	-30	-34	-40	-39	-38	-42	-41	-46
18	-53	-46	-36	-32	-29	-34	-34	-39	-43	-42	-41	-40	-35	-37	-43	-48	-46	-42	-42	-43	-50	-49	-46	-37
19	-33	-35	-34	-30	-30	-30	-29	-29	-29	-26	-24	-24	-21	-19	-20	-19	-16	-15	-17	-20	-23	-27	-28	-25
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23	-23	-35	-37	-48	-55	-59	-60	-59	-67	-67	-69	-56	-54	-48	-68	-86	-75	-66	-56	-69	-66	-84	-106	-100
24	-78	-69	-79	-82	-86	-87	-69	-61	-65	-62	-56	-61	-57	-57	-57	-70	-76	-77	-75	-73	-80	-64	-51	-53
25	-54	-48	-39	-38	-42	-43	-42	-42	-47	-51	-46	-47	-44	-44	-47	-47	-44	-45	-49	-49	-47	-42	-37	-31
26	-36	-34	-28	-25	-26	-26	-27	-25	-22	-20	-21	-20	-19	-21	-19	-21	-24	-23	-20	-20	-16	-12	-18	-23
27	-22	-15	-11	-8	-10	-20	-18	-18	-18	-19	-19	-17	-21	-31	-32	-23	-25	-31	-41	-33	-41	-45	-40	-41
28	-45	-46	-37	-35	-39	-40	-41	-34	-30	-29	-39	-27	-22	-23	-27	-39	-37	-35	-35	-30	-31	-31	-26	-30
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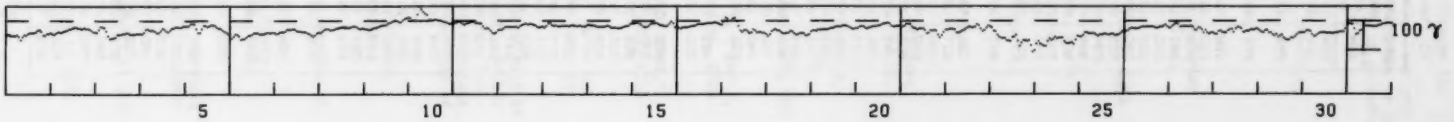

PRINCIPAL MAGNETIC STORMS

AUGUST 1981

OBS. 3 letter code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC – AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR – INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
NEW	55.1N	02	07..	..	..	..	..	03(3) 05(2) 06(3)	5	39	118	169	08	04
HYB	07.6N	02	1100	..	..	..	..	02(6,8) 03(2,3) 04(3)	3	9	104	34	04	11
HYB	07.6N	05	0100	..	..	..	..	05(2)	4	10	115	38	06	16
HYB	07.6N	09	1948	SC	- .2	13	- 1		-	--	--	--	--	--
NEW	55.1N	10	0434	SC*	5	96	8	10(2)	5	22	153	52	14	03
FRD	49.6N	10	0434	SC*	3	74	-13	10(2)	5	21	155	45	--	--
HON	21.1N	10	0433	SC	--	31	13	10(2,4)	4	2	56	16	10	17
JAI	17.3N	10	0433	SC	- .8	54	-10		-	8	111	37	11	03
SHL	14.7N	10	0433	SC	.3	56	7	*	-	7	120	22	11	03
UJJ	13.5N	10	0433	SC	- .5	65	-15		-	6	127	41	11	03
ABG	09.5N	10	0433	SC	- 1	55	-11	10(2)	6	6	135	33	11	03
HYB	07.6N	10	0435	SC	- .3	63	- 4	10(2)	6	9	173	35	12	07
GUA	04.0N	10	0434	SC*	1	53	-16	10(2)	6	--	120	40	10	16
ANN	01.5N	10	0433	SC	- 2.2	102	33		-	6	174	52	11	03
HUA	00.6S	10	0434	SC	1	66	12	10(6)	5	7	158	41	10	20
TRD	01.1S	10	0433	SC	- .1	106	114		-	4	205	180	11	03
PMG	18.6S	10	0435	SC*	.8*	44	* 34	* 10(2)	5	3	100	90	10	15
KGL	56.5S	10	0434	SC*	11	-74	-29	10(2)	4	--	--	--	10	18
HYB	07.6N	15	1500	..	..	..	..	15(8)	4	6	86	20	16	19
COL	64.6N	17	0045	SC*	-25	235	-17	17(3,4) 18(5,6)	6	161	1060	730	18	20
SIT	60.0N	17	0047	SC*	-14	* 140	* 20	* 17(4)	7	--	--	--	19	19
NEW	55.1N	17	0045	SC*	7	74	3	17(1) 18(5)	5	34	162	214	20	09
FRD	49.6N	17	0046	SC*	2	57	- 9	17(4) 18(1)	5	26	128	57	20	--
HON	21.1N	17	0045	SC	2	31	13	17(1,4)	4	15	107	55	18	00
JAI	17.3N	17	0045	SC	- .8	15	- 6		-	12	125	70	18	02
SHL	14.7N	17	0045	SC	1.4	23	2	*	-	12	174	75	18	02
UJJ	13.5N	17	0045	SC	- .9	26	- 3		-	10	145	63	18	02
ABG	09.5N	17	0045	SC	- .5	19	- 4	17(2,3,4)	5	10	150	67	18	02
HYB	07.6N	17	0046	SC	.7	25	- 3	17(4)	6	10	193	38	18	24
GUA	04.0N	17	0046	SC*	--	58	-16	17(1)	5	10	210	30	17	13
ANN	01.5N	17	0045	SC	- .8	31	9		-	9	225	92	18	02
HUA	00.6S	17	0045	SC	1	41	9	18(6,7)	5	7	314	58	19	22
TRD	01.1S	17	0045	SC	.4	29	37		-	7	281	119	18	02
PMG	18.6S	17	0045	SC*	.5	48	* 37	* 17(1,4)	5	7	160	150	18	19
KGL	56.5S	17	0045	SC*	5	27	5	18(6,7)	5	--	--	--	19	00
HYB	07.6N	21	0200	..	..	..	..	21(5,7,8)	3	6	127	26	21	23
KGL	56.5S	21	0530	SC	1	7	..	21(7,8) 22(2)	4	--	--	--	22	06
NEW	55.1N	22	2230	..	..	..	..	23(5)	6	32	201	292	26	01
SJG	29.9N	22	1515	..	..	..	..	23(8)	6	12	108	36	25	10
HYB	07.6N	22	1500	..	..	..	..	23(1,3)	4	6	96	36	23	10
GUA	04.0N	22	2127	..	--	..	..	23(1)	5	10	100	20	23	06
HUA	00.6S	22	1847	SC	--	2	--	23(5)	7	11	294	63	24	05
COL	64.6N	23	00--	..	..	..	..	23(3,4,5,6)	6	133	1400	760	25	19
SIT	60.0N	23	00--	..	..	..	..	23(5)	7	--	--	--	24	08
WIT	54.2N	23	1258	SC*	- 2	59	* 8	23(5,6,8)	5	25	145	82	24	02
FRD	49.6N	23	00--	..	..	..	..	23(5,8)	6	28	180	117	26	--
JAI	17.3N	23	1256	SC	- .7	31	- 6		-	11	108	34	25	01
SHL	14.7N	23	1256	SC	.4	30	3	*	-	7	145	25	25	01
UJJ	13.5N	23	1256	SC	- .3	37	- 7		-	9	117	35	25	01
ABG	09.5N	23	1256	SC	- .7	27	- 5	23(5)	6	9	123	48	25	01
HYB	07.6N	23	1257	SC	- .3	29	- 3	23(5,6)	6	9	183	44	25	23
GUA	04.0N	23	1256	SC	--	26	- 7	23(4)	5	10	100	30	24	10
ANN	01.5N	23	1256	SC	- 1.2	34	16		-	7	166	52	25	01
TRD	01.1S	23	1256	SC	..	..	..		-	6	192	106	25	01
PMG	18.6S	23	1256	SC	0	33	26	23(5)	5	8	160	80	25	22
NER	33.7S	23	1256	SC	12	34	54	23(5,8)	5	40	77	143	24	06
GNA	43.2S	23	06--	..	..	..	..	23(5)	6	36	90	180	25	02
KGL	56.5S	23	1257	SC	7	74	23	23(5)	8	--	--	--	24	12
HYB	07.6N	26	1522	SC	- .2	7	0	27(5,6,7)	4	9	159	38	28	19
NEW	55.1N	27	05..	..	..	..	..	27(5,6) 29(3) 30(4) 31(2)	5	32	149	149	31	17
HUA	00.6S	27	1306	..	..	..	..	27(6)	7	8	310	25	27	24
HYB	07.6N	28	2145	..	..	..	..	28(8) 29(2,5,6) 30(2)	3	10	127	58	30	17
JAI	17.3N	30	2221	SC	- .3	20	- 3		-	14	101	80	31	12
SHL	14.7N	30	2221	SC	.2	17	5	*	-	11	70	74	31	12
UJJ	13.5N	30	2221	SC	- .1	23	- 5		-	11	88	65	31	12
ABG	09.5N	30	2221	SC	- .3	19	- 2	30(2,3,4,8) 31(2,3,4)	4	11	93	68	31	12
HYB	07.6N	30	2221	SC	- .1	24	- 1	31(2,3)	4	10	108	32	31	20
GUA	04.0N	30	2222	SC	--	23	- 7	31(2)	5	10	120	40	31	12
ANN	01.5N	30	2221	SC	- .4	19	10		-	9	155	56	31	12
TRD	01.1S	30	2221	SC	.1	14	23		-	8	--	--	31	12
KGL	56.5S	31	0750	SC	3	24	..	31(2,3)	4	--	--	--	31	15
KGL	56.5S	31	0345	SC	4	-16	..	31(2,3)	4	--	--	--	31	15

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